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CONTENTS

ORIGINAL ARTICLES		PAGE		PAGE
Acute Nephritis.	L. H. Newburgh, M.D.	533	Acute Fibrinous Bronchitis.	W. H. Marshall, M.D. 552
The Pathologic-Physiology of Nephritis.	Arthur R. Elliott, M.D.	533	Treatment of Neoplasms.	Clark D. Brooks, M.D., William R. Clinton, M.D. 553
Therapeutics of Nephritis.	Wilber E. Post, M.D.	539	The Present Status of Abdominal Caesarean Section in Michigan.	Alexander MacKenzie Campbell, M.D., F.A.C.S. 556
Epidermophytosis.	R. C. Jamieson, M.D.	546	Thyroid Glands—Metastasizing Effects.	Angus McLean, M.D., F.A.C.S. 558
The Choice of Cataract Operation.	Walter R. Parker, B.S., M.D.	550		

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PARTIAL CONTENTS

Relation to ulcer of arteries supplying stomach and duodenum	Organ transplantation
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Cancer of stomach; surgical treatment	Splenectomy in anemia
Effects of duodenectomy	Syphilis in railroad employees
Management of duodenal ulcer	Tuberculosis of the spine
Treatment in bleeding type of ulcer	Radium in eye diseases
Early lesions in the gallbladder	Mastoiditis
Jaundice and its significance	Ankylosis of jaw
Hematogenous infections of the kidney	Tonsillectomy in myositis and arthritis
Recent advance in renal diagnosis	Surgery in cysts of thyroglossal tract
Surgery of the kidney	Influenza and pneumonia
Stone of the kidney	Antistreptococcus serum in influenza
Surgery of the urinary bladder	Pulmonary suppuration
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CONTENTS—Continued

EDITORIAL

At Christmas Time	561
Tuberculosis Clinics	561
To Make Michigan First in Health	562
Editorial Comments	564
Correspondence	566

DEATHS

Dr. Benjamin Robinson Schenck	567
-------------------------------------	-----

STATE AND SOCIETY NEWS

State News Notes	568
Genesee County	568
Sanilac County	569

Miscellany	569
------------------	-----

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Vol. XIX

GRAND RAPIDS, MICHIGAN, DECEMBER, 1920

No. 12

Original Articles

THE ETIOLOGY OF BRIGHT'S DISEASE*

L. H. NEWBURGH, M.D.

ANN ARBOR, MICH.

Acute nephritis is the result of the deleterious effect upon the parenchyma of the kidney of the poisonous products of infection. The streptococcus is usually the offending organism. In children a great many cases follow immediately upon acute tonsillitis.

In adults the nephritis of bacterial origin is generally of insidious onset and for this reason may be properly labelled subacute. Many of these cases appear to be closely related to streptococcal focal infection. But it is exceedingly difficult to obtain entirely satisfactory proof in support of this idea. It is certainly true that removal of an infected focus rarely effects a cure of the nephritis.

Chronic nephritis is of two types. A minority of the cases are the end stage of an antecedent acute or subacute nephritis of bacterial origin. But chronic nephritis is so intimately associated with arteriosclerosis that the two conditions must be studied together in order to obtain a satisfactory understanding of either. In order to adequately account for the prevalence of chronic nephritis, it must be shown that one or more substances or practices in common use, when indulged in to excess, are capable of causing renal and arterial sclerosis. A great many persons habitually eat two or three times the amount of protein required by them. May not the abuse of protein be a common source of chronic renal and arterial disease. In order to obtain data capable of affording an answer to this question, the writer has studied the effect upon the kidneys and arteries of rabbits, of long continued high protein diets. Both chronic nephritis and advanced arteriosclerosis has been repeatedly produced in this way. Since the rabbit, even though an herbivorous animal, normally eats amounts of protein quite compar-

able to that eaten by man, it appears to be in accord with our present state of knowledge to believe that abuse of protein by man, when long continued, will eventually produce a contracted kidney. How often this factor is in itself the cause of human chronic nephritis and how often it prepares the soil for other agencies which in the absence of such preparation, would do little harm, is entirely unknown.

THE PATHOLOGIC-PHYSIOLOGY OF NEPHRITIS.*

ARTHUR R. ELLIOTT, M.D.

CHICAGO, ILL.

The term "pathologic physiology" is ordinarily employed to indicate the study of disordered function or of function in diseased tissues. Under the title of this paper we are consequently concerned with the effect upon the function of the kidney which is exerted by the lesions of nephritis. Properly speaking this discussion should be prefaced by a description of the physiology of the kidney. Data for any exact account of the physiologic activities of the organ are unfortunately not as yet available.

The earlier attempts at the study of renal function were undertaken with the idea that thereby light might be thrown upon the degree to which the various anatomical systems (glomerular and tubular) were involved and so afford the means for anatomical-functional classification. It must be obvious that in so complex a glandular structure as the kidney, a pathologic process is not likely to confine itself to one of the histologic structures or systems of the organ to the exclusion of adjacent portions. With even the simplest type of clinical nephritis there exists enough general structural involvement to make conclusions as to special function disorder hazardous and consequently the attempt at functional classification of nephritis cases has been abandoned.

For clinical purposes many refer to renal function as if it were a unit. If this were so

*Abstract of a paper read at the Annual Meeting of the Michigan State Medical Society, Kalamazoo, May 27, 1920.

*Read at Annual Meeting, M.S.M.S., Kalamazoo, May, 1920. Section on General Medicine.

one single test capable of measuring the elimination power of the organs would suffice for the estimation of kidney activity. Unfortunately the matter is not so simple. We know enough about kidney physiology to be very sure of the fact that the different subdivisions of the renal secreting structures have widely varying physiologic functions and are affected to an unequal degree by different nephrolytic substances. For example it is a matter of routine observation that the diseased kidney may retain water and salt or urea or phosphates or any of the normal urinary constituents and allow the remainder to pass through freely. These facts impose upon the investigator the obligation to employ such various methods of testing as are available, each test being interpreted according to its own established significance.

The complexity of modern renal function testing has undoubtedly led to duplication and multiplicity. Some of the methods originally advocated have been gradually abandoned, for instance, the Lactose and the Iodide of Potassium tests are now generally regarded as not measuring what they were supposed to measure, namely, tubular and glomerular activity respectively. The process of selection and simplification of technic is still going on and we may look forward to a standardization of method in the future. The work of earlier observers in this field was handicapped by the fact that each investigator used some single method of testing failing usually to check up his results by comparing them with what might be secured by applying to the same patients several methods of study. Later investigators have pursued a more liberal policy. The interpretation of the significance of findings secured is unfortunately still largely a matter of personal impression and experiences. It will require a large accumulation of observations to enunciate any principle of interpretation or put the data in any logical sequence.

Chronic Nephritis is a disease of very prolonged clinical course and years not months are required in the study of the average case. In consequence it is not reasonable to expect that we can secure any very exact knowledge of function anomalies and variations without many and repeated observations covering long periods of time and extensive series of cases. Furthermore, it would appear necessary to study the kidney histology after death in conjunction with observed function irregularities before a satisfactory verdict can be rendered on the relation between function and structure. Many and valuable as have been the advantages gained by function studies of the kidney, it may prove

to be that they have concentrated attention too exclusively on the kidney, thereby crowding out a broader interest in the chemical balance as a whole. We see occasional examples which appear to indicate that the kidney is not the only, or perhaps, the most important factor involved in Nephritis. For example, there are occasional patients who continue to enjoy fair health yet notwithstanding have kidney function values which are ordinarily considered incompatible with life. Bearing on the same point are the cases now and then observed where fatal uremia develops with good phthalein excretion and blood nitrogen accumulation in no degree alarming. One may suspect that abnormalities of function revealed by testing have been interpreted too exclusively as the result of kidney pathology alone without allowance for the fact that the excretory power of the kidney is influenced by many other factors besides the condition of the organ itself.

It is significant that in the earlier years of renal function study enthusiasm was expressed in a literal interpretation of results whereas now it is apparent that a greater caution is manifest in making deductions from any group of tests applied at one time. This is perhaps due to a fact now clearly apparent that the same rules do not apply for different types of cases, nor indeed are they invariably applicable within any single group. For example, it is now understood that increase in blood urea nitrogen has in acute Nephritis a different significance from the same figure in a patient with high blood pressure and chronic renal change; the patient with chronic Nephritis and edema may show reasonably good phthalein excretion and still have a very serious prognosis, while the cardio-renal patient with edema and with the same poor phthalein output may enjoy a good renal prognosis, the outlook on life depending on his cardiac capabilities. Interpretation of results is beset with difficulties and we get individual variations from anticipated results that are difficult to account for. Many of these anomalies depend probably on the operation of extra-renal factors, such as myocardial weakness, associated organic defects and intercurrent infections, blood conditions, etc. These factors exert a positive influence on the results of renal function testing so that we should not be rigid in our interpretations or be too strict in regarding abnormality of function as an affair of the kidney alone.

As regards the merits of various methods of estimating kidney function, opinion has pretty well settled on the phenolsulphonephthalein test, the renal test diet and quantitating the

waste nitrogen bodies in the blood. For the general practitioner there are two tests that offer special practical advantages. They are the so-called phthalein test and the renal test diet. The phthalein test is available for the purpose of furnishing information regarding the total function of the kidneys. The renal test diet as worked out by Mosenthal enables us to determine the efficiency of the kidneys in the excretion of water, salt and nitrogen and their ability to concentrate and dilute the urine. Quantitating the nitrogen extractives in the blood enables us to accurately gauge the power of the kidneys to depurate the blood of tissue waste.

Before proceeding with the discussion of the relative merits of these various methods, I propose to submit certain observations on patients from the medical service of St. Luke's hospital, Chicago, the work being done by Dr. J. Lyle Williams of the Pathologic Laboratory. I have selected fifty-two serial observations. In every case the phthalein index is shown along with totals for blood urea and total non-protein nitrogen. The normal value for the phthalein test was considered to be anything over 50% in two hours and ten minutes. For blood urea from 12 to 15 mgms per 100 cc of blood was fixed as average normal, for total non-protein nitrogen 25 to 30 mgms, for uric acid 2 to 3 mgms and for Creatinin 1 to 1.5 mgms per 100 cc of blood. The general averages for the cases composing the series were phthalein 30.83%, blood urea mgms 48.79 per 100 cc blood and total non-protein nitrogen 70.72 mgms. The average blood pressure formula for the series was S.195, D.113 mms. The cases included are without exception only such as are considered as having a renal moiety. They were either patients having clinical Nephritis or cardiovascular-renal disease with high blood pressure. With this material serving as a basis for illustration, let us consider what practical deductions may be drawn as to the value of the methods employed. First, with respect to the phenolsulphonephthalein test. The claim of Rowntree and Geraghty who originated this method of renal function testing,¹ was that the amount of phthalein excreted varies as a general rule in rough ratio with the extent of renal damage. In fatal uremia only traces or none at all of the dye appear in the urine for the two hour interval while in mild and moderate grades of Nephritis the amount recovered may be normal or nearly so. Agnew (Agnew, J. Howard Arch Int. Med, March 1914, Pa 485) undertook studies to determine what relation, if any exist-

ed between phthalein output and non-protein nitrogen of the blood. He concludes that in general nitrogen accumulation occurs only when the excretion of phthalein falls below 40% in two hours. This is in keeping with the observations of Folin Denis and Seymour.² In a general way these claims appear to be borne out by the results of my series, the average phthalein excretion being 30.84% with blood urea and non-protein nitrogen averaging rather more than twice normal figures. Of course, these averages should not be taken too literally, because a fair percentage of the cases were of the cardio-renal type with good phthalein excretion and no notable nitrogen accumulation; other cases of the series were advanced chronic Nephritis with profound renal insufficiency and these would have the effect of giving average values a false significance. When we come to analyze the material we are confronted with the following figures: Twenty-two observations yielded a phthalein index over 40%. For this group the blood urea averaged 21.12 mgms and total non-protein nitrogen 38.87 mgms. These figures would appear to indicate that with phthalein above the Agnew safety line of 40%, no significant nitrogen accumulation occurs. Ten of the observations reported in this series yielded phthalein values of from 20 to 40%. For this group the blood urea average was 30.85 mgms and total non-protein nitrogen 51.54 mgms. These results would appear to indicate that with a decline below 40% in the return of phthalein in the urine, blood nitrogen accumulation of positive significance occurs. There were three cases in the series showing phthalein excretory index of from ten to twenty per cent. The average blood urea for this group was 41.7 mgms and total non-protein nitrogen 66.5 mgms. Five cases yielded phthalein excretions between a positive trace and ten per cent. Blood urea values mounted in this group to 68.53 mgms with non-protein nitrogen average of 93.5 mgms. Eleven observations yielded either a faint trace of phthalein or none at all. We find in this last group enormous nitrogen accumulation blood urea values averaging 114.75 mgms and total non-protein nitrogen 140.90 mgms. If the foregoing figures possess any value they support the claim of Rowntree and Geraghty that pathalein excretion stands in rough ratio to the degree of renal excretory damage and in inverse ratio to the degree of blood nitrogen accumulation.

The great drawback attaching to the phthalein method of estimating kidney permeability lies in the difficulty of correctly interpreting

1. Rowntree L. G. and Geraghty, J. T., Jour. Pharmacol and Exper. Therap. 1910, 1, 579; *Ibid* 1911, 2, 393; Arch Int. Med., March, 1912, P. 284.

2. Arch. Int. Med., Feb., 1914, P. 244.

results. As a single method of testing it leaves much to be desired, not only because the test shows the functioning power of the kidney for the test period of two hours only, yielding no information as to accumulated lack of function, but also because it is not by any means certain that the rate of elimination of a foreign dye substance serves always as a sign and symbol of the efficiency of the kidneys in excreting metabolism waste bodies. In the small series here reviewed the parallel is not always satisfactory. For example, in one instance a phthalein index of 67% existed with total blood nitrogen of 42.28 mgms. In another instance, we note 63% phthalein although blood urea was 30 mgms and non-protein nitrogen 49.5 mgms. In still another case the phthalein excretion was 55% while blood urea stood 35 mgms and non-protein nitrogen 55.4 mgms. Fewer inconsistencies exist at the other end of the scale and yet they do occur as shown by the occurrence of a phthalein excretory index of 8% in a man of 58 with clinical Nephritis retinal hemorrhages and a blood pressure formula of 185-130, although blood urea was but 20.5 mgms and total non-protein nitrogen 34.2 mgms. It is difficult to explain observations like the following; a chronic nephritic with hemorrhagic retinitis and without evidence of circulatory insufficiency on April 27th gave a phthalein index of 35%. On the same day the blood urea was 41.8 mgms, total non-protein nitrogen 62.2 mgms. and Creatinine 2.27 mgms. He was put on a strict diet to clear the blood of waste accumulation. On May 10th the phthalein index had fallen to 27%, although renal elimination had reduced the blood urea to 26 mgms. and non-protein nitrogen to 46.62 mgms. I presume it is possible for kidney efficiency to fall, although waste accumulation undergoes reduction at the same time, provided the diet is strict enough. The general rule is that as strain is taken off the kidney by physical rest and diet regulation, the phthalein excretion improves. The effect of strain upon this test is revealed by the rapid decline in test results where strain is placed on a pathologic kidney. The failure of the phthalein test to give us any information available for either diagnostic or prognostic purposes in mild and moderate grades of Nephritis detracts greatly from its value in all but severe cases, especially as these approach the terminal stage. Even findings indicating grave insufficiency should not be accepted until extra-renal factors, such as cardiac weakness have been excluded and not even then, unless the result is judged in conjunction with general clinical study of the case,

and especially in connection with the determination of blood nitrogen.

Estimations undertaken to determine the degree of accumulation of nitrogen waste products furnishes us with the most accurate information we may secure of excretory activity in a large class of chronic nephritis, the so-called "nitrogen-retention" type. Studies of this nature are particularly to be desired for-by no other means are we able to determine the degree of accumulation of waste products, an accumulation that may vary from almost normal to enormous increase amounting to many times normal in uremia. The earlier blood studies in nephritis were concerned mainly with demonstrating the excess of non-protein nitrogen without regard for particular nitrogen extractives, such as urea, uric acid or creatinin. Later observations have taken into account the percentage of blood urea and there appears to be a disposition to substitute blood urea estimations for total non-protein nitrogen on the assumption that blood urea values are more sensitive to influence from renal factors. Mosenthal claims that in lesser degrees of kidney disturbance there is an increase in urea before non-protein nitrogen is above the normal. Computing the normal blood urea average as one-half the non-protein nitrogen, we have found our observations furnish support to this claim. Meyers and his co-workers (J. A. M. A. Vol. 67 P 929) point out that in comparing the concentration of the various nitrogen bodies in the blood and urine it was observed that the kidney was able to concentrate creatinin 100 times, urea 80 times, and uric acid only 30 times. This would apparently indicate that normally creatinin is the most and uric acid the least easily excreted with urea standing in an intermediate position. If this is true it would appear logical to expect that the excretion of uric acid would be the first to become impaired, next would be urea and last creatinin.

According to these views, uric acid retention should constitute one of the early signs of nephritis, while an appreciable piling up of creatinin should indicate a grave impairment in the functional capacity of the kidneys and therefore possess grave prognostic import. These authors claim that their studies show that high uric acid is found in many early cases with urea and creatinin at the time frequently normal. Upham and Higley³ undertook a series of studies to determine how far uric acid findings might be utilized for the early diagnosis of nephritis. They submit that while high blood uric acid is a common symptom in early neph-

3. Arch. Int. Med., Vol. 24, P. 557.

ritis, it is by no means a specific one. Its availability for an early accurate diagnosis of the disease is therefore materially limited. In our series of cases there are included nine cases in which the blood uric acid was quantitated along with other forms of blood nitrogen. The average for these nine cases was rather high, 4.85 mgms. Although above normal figures, this average is below the average increase in the same cases for urea which was 49.58 mgms. and for total non-protein nitrogen which was 74.3 mgms. Certain instances ran a high uric acid with very little increase in other nitrogen bodies and these would appear to support the claim of Chase and Meyers. Certain other instances, however, offset this impression. We find for instance, in one patient a uric acid excretion of 3.7 mgms. along with a phthalein index of 6%, blood urea of 68.88 mgms., non-protein nitrogen of 92 mgms. and creatinin 7.85 mgms. Another instance of disproportionately low uric acid is one in which there was found uric acid only 5.65 mgms. with a phthalein index of 0.5% urea 142.67 mgms. total non-protein nitrogen 185.6 mgms. and creatinin 9.96 mgms. Certain control observations on blood uric acid which we carried out on patients without nephritis yielded in some instances increased blood values for uric acid. It is too early yet to admit without reservation the claim of Meyers and collaborators that uric acid increase in the blood possesses diagnostic value for nephritis.

In addition to serving as a sensitive and reliable index of kidney excreting efficiency, the estimation of waste nitrogen products in the blood possesses a special prognostic significance. The tendency to uremia may usually be measured by the level of nitrogen accumulation. The typical termination of nitrogen retention nephritis is by uremia provided extra-renal factors cardiac cerebral or infective do not close the scene. Time will not permit of a discussion of the various types of uremia or the factors concerned therein. Not all cases of uremia have nitrogen accumulation or low phthalein index, and no claim is made so far as I know that retained nitrogen is the cause of uremia. There is general agreement however that considerable prognostic value can be attached to high nitrogen accumulation, especially if accompanied by low phthalein output and fixation of specific gravity, since they indicate beyond question that renal function is seriously damaged, that there is constant danger of uremia and that long tenure of life cannot be expected. Total nitrogen values of 80 to 100 mgms or more may be regarded as of grave significance. All of the cases in the present reported series where the

phthalein index fell to a trace or zero averaged high total nitrogen, figure being 140.91 mgms. All of these patients have died except one. This patient is living nine months after the date on which phthalein failed to be excreted and total non-protein nitrogen passed the 100 mgms mark.

The search to find reliable criteria for prognosis leads us to the claim of Meyers and Killian⁴ that the accumulation of blood creatinin beyond a certain point marks the progression of nephritis to the terminal stage. These authors noted in their studies on nitrogen accumulation that the creatinin in the blood was appreciably increased only after considerable retention of urea had already taken place and the nephritis was far advanced. They point out that theoretically the amount of creatinin should be a safer index of kidney permeability than urea because creatinin is entirely endogenous in origin and its formation and elimination normally very constant, whereas urea is normally largely exogenous in origin and its formation consequently subject to greater fluctuations. As a matter of fact this claim appears borne out by observation. Meyers and Killian found that of 85 cases having a blood creatinin content of 5 mgms. or over, 80 terminated fatally. They claim to have found creatinin determination superior in prognosis to the phthalein test, because thereby changes in the patients condition as the case nears its termination are clearly shown, while the phthalein test after a certain point in nephritis is continuously negative. The number of creatinin observations included in the series reported herewith is not sufficiently large to carry much weight, but so far as they go they furnish support for the claim of Meyers and Killian. Five of the cases in which creatinin determination was made yielded 5 mgms. or over. Without exception the phthalein index was reduced in these cases to a mere trace or zero and non-protein nitrogen was over 100 mgms. Four of the five cases have terminated fatally.

Chronic nephritis is a disease which is notorious for its clinical vagaries. It is perhaps not surprising that we meet with glaring inconsistencies in the clinical application of the data secured by the various methods of function estimation. Cases that appear very grave on general clinical ground are often found astonishingly free from indications of renal function failure and conversely cases that appear on safe ground when judged by purely clinical criteria yield evidence of advanced function impairment when tested out. It is surprising how long cer-

4. Am. Jour. Med. Sc., Vol. 158, P. 674.

tain cases of chronic nephritis may survive after nitrogen accumulation has attained high figures and phthalein excretion is reduced to a mere trace or become suppressed entirely. O'Hare has reported a number of such instances. No absolute prognosis as to duration of life appears possible on functional findings alone, because we do not know how low renal function may fall and yet be sufficient to maintain life provided the diet and hygiene of the patient are properly adjusted.

In the foregoing discussion brief mention has been made of the renal test diet of Mosenthal. This valuable method of observation should not be passed over without further consideration. As the power to eliminate solids becomes seriously impaired in chronic nephritis, we find the ability of the kidneys to secrete a urine of normal specific gravity is lost so that eventually the diseased kidney cannot even on a dry diet excrete urine with a density, above about 1013. After the ability to concentrate the urine is lost, the kidney may still preserve its normal power of diluting the urine so that after ingestion of large quantities of distilled water, the specific gravity may fall to a low point, 1003 or less. Eventually however, with progressing renal damage even this capacity of varying the urinary composition disappears and the kidney secretes only a urine of low fixed density, 1010 to 1013. This behavior of the kidney in nephritis has been utilized as a means of functional observation, the credit for this work going mainly to Mosenthal who has established a standard method of procedure. Mosenthal pointed out that a very considerable amount of information may be obtained from observation of urinary volume and specific gravity in nephritis patients when put on a definite diet containing a fixed quantity of fluids. This diet test is known as the "renal test day." The individual with normally functioning kidneys is able to excrete at night a urine of high concentration, the so-called "urina sanguinis" of former times but in nephritis the specific gravity remains at a relatively low fixed point with a very deficient concentration of chlorids and nitrogen. The importance and diagnostic value of this fact has not yet been fully appreciated. A normal observation with the renal test diet reveals a maximum specific gravity of 1018 or over, varying 9 points or more from highest to lowest during the test period. The night urine is small in amount (400 cc or less) and of high specific gravity, 1018 or over. A lowering of the maximum specific gravity, fixation of specific gravity and nocturnal polyuria are the signs indicating

a diminished renal function. The chlorides nitrogen and other constituents may be determined in the urine and compared with the intake and thereby valuable information secured as to the ability of the kidneys to excrete these substances. However, the simple procedure of measuring the volume of urine and determining the specific gravity of the night urine and two hour divided day urine and charting them in comparison with intake yields sufficient data to give an essential idea of renal function.

This test would have wide currency in clinical work were its value better appreciated, and the simple essentials of its application better understood. It is not necessary that any standard list of foods either as to quality or quantity be adhered to. The ordinary food available in any household may be employed. The precautions in carrying out the test that are absolutely essential are that a close estimation be kept of all fluid ingested, that all urine should be collected punctually every two hours during the day, that no solid food or fluid of any kind be taken between meals and especial care must be observed that nothing is eaten or drunk during the night and that the night specimen is completed separately before breakfast is touched. Other things being equal and extra-renal factors so far as possible excluded the points developed by the test that will indicate renal insufficiency are the following: 1, markedly fixed and low specific gravity. 2, night urine showing increase in volume over normal, lowered specific gravity and low concentration of nitrogen. Cases displaying this entire group of reactions are of course advanced cases of Nephritis. During the earlier progress of the disease, it may be that all that is apparent is a tendency to polyuria and elevation of the quantity of night urine. The first signs are usually demonstrated in the night urine. Positive reactions to this method of testing are not confined to nephritis alone but may appear in other renal conditions such as pyelo-nephritis, polycystic kidney and extra-renal states, such as anaemia, diabetes insipidus, prostatism, etc. The test is inapplicable in acute Nephritis and in states of myocardial decompensation and during the accumulation and elimination of edema. Our experience with the test has been comparatively limited, sufficient, however, to venture the opinion that its usefulness is best shown in middle stage cases of Nephritis with high blood pressure and good cardiac compensation. Studies with this test over a single twenty-four hour period are inconclusive, unless they yield evidence of very positive character for too many factors may influence water excretion over so

short a period. Two observations of a high specific gravity are worth much more than a dozen never going over 1010. When conclusively demonstrated an inability to concentrate indicates considerable damage to the kidney. Even positive evidence of this sort alone is of less significance, than when it fits into and confirms the rest of the clinical picture.

It is apparent that in this discussion but one phase only of the disturbed physiology of the kidneys has been considered. There are other problems more or less important which have not been touched owing to lack of time. Among these are the salt metabolism of the nephritic and edema, hyperglycemia in Nephritis and the relation of acidosis to renal insufficiency.
30 North Michigan Boulevard.

THERAPEUTICS OF NEPHRITIS.*

WILBER E. POST, M.D.
CHICAGO, ILL.

Therapeutics in nephritis is obviously a broad subject and in the discussion this afternoon either marked brevity or attention only to certain features will be required—perhaps both. For the most part there will be only a restatement of that which has been long known. Little is new.

In the beginning permit me to make a few general statements:

1. A rational therapy in nephritis is based upon pathological factors concerned in the given case. By this is meant that a careful analysis of each case of nephritis will reveal one or more of the fundamental pathological processes as the cause of the nephritis and the remedy depends upon the nature of those pathological processes. These pathological processes are due to:

1. Infection
2. Intoxication
3. Vascular disease
4. Cardiac failure
5. Impairment of respiratory function of the blood.

According as one or the other of these is the chief causative factor, our therapeutic management will be governed.

2. Much of our concern in nephritis is in the disease processes in other parts of the body than in the kidneys—such are the so-called uremic symptoms of disease in the brain, edema as a manifestation of disease in subcutaneous tissue, muscle, serous membrane, lungs; impair-

ment of vision or pain in the eyes as indications of disease in the eye; dyspnea due to impairment of the myocardium; asthma, dyspnea or cough due to interference with the function of the lungs. With these and other conditions associated with nephritis may be our chief concern. Far too often have we been taught to say these conditions are *due to nephritis* while in greater probability they are due to the same pathological agents or processes that cause the disease of the kidney. The numerous investigations of the last few years leave us astonished at the scarcity of scientifically demonstrable evidence of disease of the kidney itself—albumin and casts in the urine, and in case of extensive destruction of both kidneys, inanition, weakness and death. Functional tests of the kidney, as such, are unsatisfactory.

3. Therapy in nephritis has been in the past altogether too much concerned with the attempt to bring about the vicarious elimination of the poisonous products of metabolism which the diseased kidneys are alleged to be retaining in the body as a dirty sieve in a sewer might dam back the sewage. If therapy is directed toward overcoming the pathological processes that produce the impairment of metabolism, that therapy may have a more rational basis and more satisfactory results.

If then we start with this viewpoint and see that following exposure to cold and an acute infection of the tonsils or upper air passages, there appears generalized edema and albumin and casts in the urine, we find it simpler to understand and more consistent with experimental evidence if we consider that the generalized edema is the result of the chilling and infection upon the tissues of the body in general and not the result of retention of poisons, water and salt by diseased kidneys. In fact, we do see cases in whom the chilling and infection and resulting edema occur without the kidney disease and we see the kidney disease without the edema. Experimentally injury of the kidney alone never brings about the edema, nor uremia.

Such cases represent the group of parenchymatous nephritis in which generalized edema is a common accompaniment, and in which the albumin and casts and blood and renal epithelium in the urine may be large or small in amount or number. Do we find in the blood plasma increased urea and other non-proteid nitrogen, increased chlorides, diminished alkaline reserve, diminished water output in the urine, diminished salt in the urine, low Ambard coefficient, low McLean index, low phenolsulphonephthalein output? Sometimes we do and

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sometimes we do not. But why do we find them increased or decreased? Is it because the diseased kidney is plugging the exit of metabolic products from the body? Or is it because the tissue cells and fluids of the body have been so altered by infection or intoxication or chilling that the tissues and fluids retain water and salt in excess? And is it because metabolism in the tissues is rendered so imperfect that abnormal products of metabolism are formed and retained in excess? It is probable that both viewpoints are correct, but we need to emphasize far more than is usual the latter view.

This same attention to disease processes in the tissues of the body as *accompanying* nephritis, but not as *caused* by nephritis is applicable in all forms of nephritis. In the so-called parenchymatous types of nephritis infections or chemical poisons have caused sufficient degeneration of kidney tissue to cause larger amounts of albumin and greater numbers of casts and red blood cells or epithelial cells in the urine. At the same time the infection or chemical poisons have injured the body tissues outside the kidney so that they have greater power to hold water and edema and anuria result, and uremia with headaches and nausea and vomiting result and albuminuric retinitis, and acute cardiac failure result. In so-called interstitial types of nephritis the small arterioles have become so altered by infection or intoxication or degenerative changes that high blood pressure results. These blood vessels supply insufficient blood to the tissues, so that the myocardium finally fails and angina or dyspnea result; loss of weight and muscular weakness occur or the brain has insufficient nourishment and mental irritably, loss of ambition, actual depression, insanity, headaches, dizziness, insomnia, twitchings, convulsions and coma develop.

Cardiac insufficiency may be the chief factor in causing the lack of nutrition in the kidneys as well as in other body tissues, and albumin and casts appear in the urine and edema in the dependent portions of the body, later general anasarca and cerebral symptoms appear. High blood pressure is not found in this type.

Anemia may lead to similar changes in the kidneys and body tissues. In brief, what we wish to emphasize is this: While infection, intoxication, vascular disease, cardiac failure and blood deficiencies are causing changes in the kidneys that result in the appearance of albumin and casts in the urine, they may also be producing changes in other body tissues so that edema, uremia, asthma, angina, disturbance of vision, vertigo may appear, but these affairs of the body outside of the kidney we have not yet

shown to be the result of kidney disease and we have shown them to be the result of the fundamental pathological processes named.

This prolonged statement of general pathology introducing the treatment of nephritis is justified because in our opinion it forms the basis of therapy.

In cases in which infection is the cause of the trouble the problem is to get rid of the infection and to restore the damaged tissues wherever in the body they may be. Unfortunately we are unable to rid the patient of infection by any known means in many cases of acute diseases such as scarlet fever, measles, septic sore throat, influenza, pneumonia, etc., but in the more chronic infections existing in localized foci such as tonsils, sinuses and alveolar abscesses the source of infection may be eradicated. The problem is more difficult when we find as Ophuls, by stains of the kidney tissue and as Dick by cultures of the urine, have shown us there exists a persistent infection in the kidney itself. We know of no means of actively eradicating infection from the kidney especially when that infection is due to the streptococcus as it is so frequently.

In most cases of acute infection much can be done by simple measures to prevent undue injury of the kidneys or general body tissues. Among these measures are (1) rest in bed, to prevent the production of excessive fatigue and its attending intoxication; (2) careful precautions against chilling of the patient. (3) Dilution of the toxins of the body by freely flushing the body with water so long as the kidneys will excrete water freely. (4) Neutralization of the body fluids by the administration of alkalies in the form of the time-honored saline diuretics—citrate, acetate, and tartarates. For reasons to be given later these would best include not only the sodium and potassium salts but also iron, magnesium and calcium. Neutralization is also maintained by foods containing the alkaline salts, such as most of the leafy vegetables and root vegetables and the fruits without pits. (5) Maintaining nutrition as nearly as possible so as to prevent the damage attending starvation acidosis. (6) Avoiding irritants such as spices and condiments, the aromatic oils of raw onions and radishes and peppers, and the meats rich in purines and aminoacids. (7) Maintaining free movement of the bowels but avoiding distressing catharsis.

In the department of contagious diseases at the Cook County Hospital Chicago, since more careful attention has been given to the neutralization of the body fluids by the above means, and the routine milk diets have been abandoned,

the incidence of nephritis in those wards has diminished to less than 25% of their former number.

Obviously if such are the principles of prevention of nephritis, so also are they the basis of treatment. Problems become more urgent, however, when injury is already done, when edema is already established, when degenerative processes and resulting edema of the brain have brought on convulsions, when the kidneys no longer secrete water. In large part the problem is one of neutralization of toxins and unfortunately we have no adequate rational antitoxin for many of the toxins nor have we adequate knowledge of the nature of the toxins. Insofar as available alkalies can neutralize the excessive acidity they may be used by mouth or by rectum; insofar as salts in the form of citrates or acetates or tartarates or sugar can be used in overcoming edema they should be used. In the latter connection one finds a basis for Lambert and Patterson's solution containing Potasii Bitartrate i dr., sugar i dr., Lactose $\frac{1}{2}$ oz. Lemon juice 1 oz., water qs ad io. Likewise one finds a reason for the long used colonic flushings with a half saturated solution of magnesium sulphate, although in this case care must be given that the large amount of concentrated solution does not remain long in the bowel. Small amounts of liquid magnesium citrate (containing not only magnesium citrate but sugar) repeated frequently until the laxative effect is produced may be useful. *In the beginning* of the treatment of advanced cases of this type it may be that retention enemata of Fisher's solution of sodium carbonate and sodium chloride are advisable. But in my experience they should be continued only a few hours or until the flow of urine is reestablished and its acidity is in part overcome. Then use some form of citrate, acetate or tartrate.

Spasm of the arterioles due to irritating toxins and vasomotor disturbances manifested by rapidly increased blood pressure may be a factor. Sweating by hot moist packs or otherwise is one of the most effective means of overcoming this and is advisable unless cardiac failure appears. In my opinion the value of sweating lies not so much in the elimination of much water and little poison through the skin as in the fact that vascular spasm is relieved, the blood is again allowed access to the tissues, and the heart's task is made lighter. When cardiac failure is indicated by dyspnea cyanosis and tachycardia sweating may be harmful and digitalis far more helpful.

Shall bleeding by venesection be performed? Yes, if uremic convulsions occur and if the price

can be paid. By this is meant that in cases of marked permanent arterial disease with myocardial degeneration, bleeding may result in seriously diminished blood supply to the tissues and, therefore, harm instead of help. More than once have I seen convulsions produced by bleeding.

Is lumbar puncture justifiable? Yes, as a temporary measure. It relieves the intracranial pressure and allows improvement of the blood supply to the brain. But its usefulness must be temporary and limited. The advantage should be seized as an opportunity to rush all possible agents to the brain that may help in restoration of its tissues. At the same time our general measures are restoring the general body tissues and the brain as well as the kidneys.

In what manner do our problems of therapy in chronic interstitial nephritis with high blood pressure differ from the above? In this, that the chief pathological factor is disease of the small arterioles. Our first effort is to remove the source of irritation of these vessels. It may be in a focus of chronic infection in the tonsils or nasal sinuses or about the teeth or a chronic cholecystitis or a latent syphilis, or gout, or abnormal indiscretions or excesses in diet. In such cases there is promise of help. But too often the seat of infection is in the kidney itself, or the injury was done by infection in childhood many years previously or there is an inherited quality manifested by degeneration of the blood vessels early in life. In these latter removal of the source of trouble is usually out of the question.

The general measures applicable in such cases are:

1. Rest, or restrictions of both physical and mental activity to the degree that the task required of the brain and heart and muscles may be provided for even by the impaired blood vessels. Often this means rest in bed for a time. Sleep is essential and bromides or barbitol or aspirin with a hot drink at bedtime may be helpful. But in advanced arterial changes these are not usually effective and opium is justifiable.

In most cases spasticity of the vessels is a factor and again the hot pack or hot cabinet is justifiable.

What has been said of diet and neutralization of body fluids and salines and laxatives are likewise applicable.

Return of restful sleep, relief from headaches, disappearance of irritability and depression; return of energy and ambition mark the success of management and the patient's continued well-being will depend largely upon his faith-

fulness in restricting his daily activities within the limits of his endurance.

The most brilliant results are often seen in cases of young persons without vascular disease or infection, and in whom marked albuminuria with casts and edema are due to cardiac failure. Rest in bed, digitalis and one of the caffeine derivations (diuretin) result in the most amazing loss of excessive fluids and the restoration of the patient to comfort and comparative health.

Attention should be called to a group of cases frequently met in young persons in whom the albumin, sometimes with casts, is extremely variable. Usually they feel well but have grown rapidly. Observation under hospital control shows that the albumin and casts disappear entirely with an hour's or a few day's rest in bed only to reappear when the patient gets up and about. Neutralization of the urine by the use of acetates or citrates or even sodium bicarbonate is promptly followed by the disappearance of the albumin even though the patient walk for miles. If the diet includes plenty of the proper vegetables and fruits, other means of neutralization of the urine may be unnecessary. The elimination of sources of chronic infection when present, and the establishment of a wholesome program of living will usually lead to a disappearance of the trouble.

In the preceding discussion, little has been said of salt (sodium chloride) restriction, because I have wished to pay some special attention to the subject of salt and alkali therapy. Soon after Martin Fischer's publication of his brilliant theory of edema and then his announcement of the application of that theory in the treatment of nephritis, we made a rather careful and earnest study of its use. We selected a series of cases of so-called chronic parenchymatous nephritis with edema in young people without any marked vascular or cardiac changes. The patients were placed at rest in bed and nutritional equilibrium was established on a meat free diet including fruit and vegetables and a constant daily fluid intake of 2000 c.c. or 2500 c. c. After three days a milk diet of equivalent caloric value and with the same fluid intake was substituted. After three days of this, sodium carbonate and sodium chloride were given in capsules over a period of one to three days. These were then stopped and the milk continued two or three days, then the diet including fruits and vegetables was reestablished.

The following observations were made:

1. Without exception the patients felt much better, had less headache and restlessness and

irritability and less edema when on the diet including fruits and vegetables than when on milk alone.

2. The acidity of the urine increased sometimes threefold within forty-eight hours after starting the milk diet.

3. The quantity of urine decreased after starting the milk diet and the albumin and casts and blood and renal epithelium in the urine increased sometimes to the extent that we dared not give salt and alkali or continue the experimental period.

4. The administration of the salt and alkali, or the salt alone, or the alkali alone, in the form of sodium carbonate, was followed by the appearance of headaches, restlessness, irritability, loss of appetite sometimes nausea and vomiting, markedly increased edema, decreased quantity of urine and increased albumin, casts, renal epithelium, and blood in the urine.

5. As the reaction of the urine passed from acidity to alkalinity to litmus there was observed a distinctly increased flow of urine lasting for several hours—indicating as Fischer maintains that the most favorable reaction for secretion of urine is neutrality to litmus.

6. Other salts such as the time-honored saline diuretics never produced the above harmful results.

While we were thus forced to conclude that sodium chloride and sodium carbonate administered in this fashion to this group of cases was actually dangerous, other experiences have prevented me from sharing with some in the condemnation of Fischer's theory in toto. On the contrary I believe he has made the greatest of all contributions to our knowledge of the subject of nephritis for several decades.

My experiences confirming the value of the theory have been as follows:

1. A child with marked subacute nephritis, marked edema and almost complete suppression of urine, which was very acid, had been in a comatose state and had had convulsions for forty-eight hours. Repeated bleeding and sweating and lumbar puncture had failed. Administration of a solution of sodium chloride and sodium carbonate by rectum for five hours was followed by the restoration of urinary flow, cessation of convulsions and return of mental faculties. Other salines were then begun and in forty-eight hours the edema had largely disappeared and the child was playing with her toys.

2. In certain other cases on Dr. Billings' service the administration of salt and soda together with large quantities of water was followed by rapid disappearance of edema and of

albumin and casts from the urine. It may be that these cases were akin to the variable albuminurias before mentioned.

3. Neutralization of the urine by the saline diuretics has never seemed to do harm and in most cases has been helpful.

4. The study of the influence of various salts on surface tension in emulsions is now being carried out by one of my associates, Dr. W. A. Thomas, and we hope to find some further light on the effect of salts and alkalies on physiological processes. In the meantime we do keep in mind that they are at most only one factor in the conditions associated with nephritis.

122 S. Michigan Ave.

DISCUSSION.

Dr. M. A. Mortensen, Battle Creek: It hardly seems possible that I can add very much to what has already been said to-day on this most important subject.

One of the things I think we should try and remember is the fact that nephritis is one of the diseases that is on the increase, particularly in this country. The mortality tables that have appeared in recent years show that nephritis is one of the diseases in which there has been a progressive increase. Associated with this, is also the cardiac diseases. Consequently it is of importance to know that we have got a problem with which to deal in order to save life and prolong life.

Much has been accomplished with some of the acute diseases; and now the problem is to duplicate the same thing in the chronic conditions. Some of the difficulties with which we have to contend in nephritis is that we are not absolutely certain of all the factors in the physiology of the kidney. There are various theories as to the *modus operandi* of the elimination of the various toxic products produced in the bile. We are not absolutely certain of the etiology. There are the infections and toxins, and the origins of the toxins are many. A careful study of official material and particularly the history of these cases, the habits of life, and so on, I think are of extreme importance in our work as observers of this class of cases.

Next, and of the greatest importance, is early diagnosis. That is where I think many unfortunate mistakes are made. I think any of us that have experienced dealing with patients that are sent to hospitals or institutions are frequently met with this condition. We go over the patient carefully and we come to the conclusion that there is something wrong with the kidney function or trouble with the kidneys; and in discussing that matter with the patient, they will immediately tell us that Dr. So and So examined his urine and told him there was nothing the matter with the kidneys. They may have had that done repeatedly over a period of years and received the same information, and consequently not have the trouble recognized early; and the

therapeutics, in order to be really valuable, should be given early. The earlier it is recognized the better will be the results because when we get the patient in the last stages with marked changes in the functional activities of the kidney, then our opportunities are limited.

I think that another important factor is that the general practitioner should recognize the value, for instance, of the elimination of water and the concentration of water. It seems to me that in many of the chronic cases this is one of the early changes that takes place and we all can remember case after case that will tell you they commenced to have profuse elimination of the urine at night as the first thing that made them think there was something wrong with the kidneys. That, in all probability, was the polyuria of beginning changes in the kidney.

There are one or two things in conjunction with the functional changes I think important to bear in mind and particularly in individuals, men fifty to sixty years of age, and that is the possibility of retention of urine in the bladder because of prostatic hypertrophy. Repeatedly I have seen cases in which there were evidences of disturbed function of the kidney where draining the bladder daily so as to prevent accumulation of residual urine has made a profound effect on the kidney. Just how it acts I am not in a position to say but in all probability it is reflex and here we must remember that in these cases the care of the bladder and the prostate must be considered in the treatment of such cases of nephritis.

Dr. E. W. Haas, Detroit: This interesting subject was up for discussion in the section on pharmacology and therapeutics at the recent New Orleans meeting and was discussed in a very interesting way. There is a very marked difference of opinion among various investigators as to the functions of the individual portions of the kidney. That is, the functions of the glomeruli and the functions of the tubules. This can be easily understood when we remember that one portion often compensates for another portion damaged. Then, too, there is a great difference in the so-called threshold of the kidney. We know, for example, a patient can have a normal amount of sugar and still the kidneys show a so-called nephritic glycosuria. On the other hand, with a largely increased amount of sugar it can show no evidence of the sugar in the urine. You get a change in the same patient from time to time. In other words, the ability of the kidney to secrete varies at different times.

It strikes me we can gain something from this if we consider the kidney from the embryological standpoint. In the early times, the fish in the water needed a simple mechanism. He possessed simply a glomerulus. When the animal began to climb over land, the necessity of conserving water and salt became apparent and then there was developed a tubular structure in which he was not only able to excrete but able to retain those things which are necessary for the body economy. Then added to that came the necessity for an apparatus which must be able to eliminate other products, the nitrogen bodies. The

kidney developed then into a rather complicated organ.

As Dr. Elliott of Chicago has so well mentioned before us, these various nitrogenous bodies which are practically obtained from the food ingested and then, to that extent, may be controlled—the uric acid, which consists of practically waste products of food retention and likewise from tearing down of tissues—seem to be entirely dependent upon endogenous activities. It strikes me that this man erred somewhat in the prognosis of the disease, as Dr. Elliott has pointed out.

In our work at Harper it has been shown that the substances most easily excreted, this substance which does not depend at all upon what the patient eats, but what the patient tears down, and is the most easily excreted, is a very prognostic sign. As the doctor's figures show, a per cent of five milligrams or so is a very careful estimation. As far as the uric acid estimates are concerned we know that uric acid may be retained in a case in which there is no kidney trouble at all. There have been many attempts made to differentiate the functions of the different portions of the kidney by different tests. Dr. Elliott also mentioned this. They thought for a time that the tubules, for example, alone secreted iodine. It has been shown in animals you can take a certain portion of the tubule and that consequently if you give iodine and it is not excreted in a definite time, we had tubular inflammation; if you gave milk sugar and it was or was not excreted that showed whether we had a glomerulus.

Christian pointed out that one portion can do the work of the other portions. As Dr. Newburgh pointed out, we have learned the danger of high proteid feeding. In that respect, I can only bear him out because we have found that some of our patients tested by some of these diets, for instance, the Rosenthal diet, were seriously damaged.

Dr. L. H. Newburgh, Ann Arbor: There is one point. Dr. Post talked about infection in the kidney as a type of Bright's disease. In my paper, I tried to emphasize that infection in the kidney was something else than Bright's disease. I tried to bring out the point that the kidney might be—was as a matter of fact—affected by the poison of infection at a distance. If Bright's disease is due to infection of the kidney, then we can hope a little of course to eliminate that infection by the use of the general methods of hygiene. On the other hand, if Bright's disease is ever due to toxins of infection, which infection is at a distance, we can hope to very frequently remove the source of infection showing the effect on the kidney. It seems to me of fundamental importance to make up our minds whether the infection is in the kidney or whether the kidney is harmed by the products of infection at a distance.

Dr. Arthur R. Elliott, Chicago: The study of a case of nephritis today is a matter of infinitely greater interest and more exactness than before we used these methods of investigation. Not

only bearing on a better comprehension but in its importance that the results possess in the way of regulation of treatment. Now, all are agreed that the most important arm of therapy against nephritis is the diet. Your methods of function, study of the kidney, its power of elimination of nitrogen and so forth—we proceed blindly in the regulation of our diet. Compare for instance the results of the last generation to what we are able to employ now in the way of exactness. You know the old prescription a few years ago was a meat-free diet or purely vegetable or starch diet; or a diet excluding one form of meat and allowing another, on a pure misconception. We know very little what our kidneys are able to accomplish in the way of excretion, and we can correspondingly modify the diet.

I know nothing more gratifying than to take a case and study it from the nitrogen accumulation standpoint, and on such a basis, give a diet containing a limited amount of nitrogen, and then watch the blood condition as the case proceeds under treatment. In that way, it is frequently possible, under my observation in the hospital, to entirely flush the system of excess nitrogen and to get a figure of two and one-half and three times normal down to normal in a short time. It places the patient on safe ground when previously on unsafe ground. Not that the nitrogen gives rise to uremia.

I want to warn you about some of the remarks of Dr. Post. Especially as regards his alkaline therapy. There is something reminiscent in this recommendation to employ alkaline therapy. Thirty years ago Thompson was strong in his recommendation. Dr. Purdy, I well recollect, many years ago used to cite with pride to the effect which the alkalization of the urine had in the way of diminishing the amount of albumin and what would be the effect upon the patient himself.

One wonders whether the employment of alkaline diuretics in nephritis would be a reality as we have come recently to realize. Any substance which may be excreted normally by the kidneys may be retained. They may be all given out on occasion and may be retained on occasion. Now the "buffer salts" of the organism are the phosphates. We know as the phosphates are used in neutralization of acid bodies, the acid sodium phosphate is formed and being excreted.

Now lately it has been realized that many nephritics, especially as they approach the terminal stage, retain proteids which give them an acidosis and we know it is a different acidosis from the acidosis of surgical anesthesia and of starvation because the ketone bodies are not concerned. They have high values for iron in the blood. It has been demonstrated I think pretty generally to the satisfaction of those who are interested that the retention of acid sodium phosphate gives rise to the acidosis of nephritis. I have no doubt many in the middle stage have some elements of acidosis and that the administration of alkalis may exert a good therapeutic effect by the neutralization of the acidosis. The fact that the carbonates do not do this as well

as the alkaline citrates and tartrates would seem to point favorably to that conclusion. Alkaline carbonates are much too strongly alkaline. If you give too much alkali you get a condition just as serious in its effects as an acidosis. The more alkaline salts may accomplish a neutralization and thereby effect a therapeutic value.

Dr. Hugo A. Freund, Detroit: If there is no such thing as an infectious nephritis, granting Dr. Newburgh's point of view in the matter, how are we going to classify those types of kidney in which we do find local lesions, whether due to secondary infection coming from a tuberculous lesion in the kidney or whether they are that type of focal infectious nephritis such as shown a few years ago in rabbits. We do not know whether in scarlet fever, in which the etiology has not been proven, the damage is done partially by the focal presence of bacteria or the source of infection in the kidney itself. So, that of course remains an open unsolved question.

Whether Dr. Newburgh wishes to qualify that new toxic nephritis or not makes very little difference, it seems to me. There is a definite type of nephritis in which you have signs of nephritis both in the blood chemistry and in the urinary findings associated with definite kidney function.

I think Dr. Elliott pointed out some very important things in regard to alkali treatment of nephritis.

I don't see exactly, Dr. Post, how you are going to tell when you are keeping your urine at a neural point how definitely you are going to be able to tell when the alkilosis has gone so far as to produce dangerous symptoms; and, after all, what is the substance producing acidosis in the individual? The acidosis is not a production acidosis resulting from ketone bodies, but rather a retention acidosis. We say it is an increased CO_2 . What do I mean by retention acidosis? I mean it is primarily a renal disease, that the acid bodies have not been eliminated due to the destruction of the renal substance.

Dr. Post: That is what I am trying to learn, have been trying to learn for years. What portion of that acidosis is due to lack of renal function.

Dr. Freund: There is not an increase of elimination but of your other substances.

Dr. Post: There is the very point exactly. In our literature and experimental work, however, we have not proved whether that is due to the renal disease or due to disease back in the tissues of the body.

Dr. Freund: That I do not think has been proven except this point is true, that by the destruction of calcium salts they are able to change the acidosis in some cases because evidently we get calcium phosphate formed which is eliminated and the acid phosphates are therefore junked or put out of the way.

Any one can get into a lengthy discussion on the subject of acidosis. I do not believe there has been definite proof either on the side of tissue retention or on the side of kidney retention enough to warrant us to say definitely in any

case of sub-acute or chronic diffuse nephritis that the free administration of alkalies is always the wise and essential thing.

Dr. Wilber E. Post, Chicago: In regard to Dr. Newburgh's question, I feel that the question of the existence of infection in the kidney, with the bacteria in the kidney itself, in these various forms of rephritis, is still an open question. But I personally am beginning to lean towards the view that many of these that have been supposed to be damages due to toxine are really due in part to the presence of bacteria in the kidney; because, as Ophuls has shown in his work, there are bacteria tissue in quite a percentage. Dick in his work on the cultures of the urine showed a very high percentage, over sixty per cent., that contain streptococci. Those two workers, working independently, one on tissue and the other on urine, with such results, lead me to think we have very frequently at least when we have not suspected it, infection in the kidney itself. So far as I know we have no other clinical means of differentiating the evidence.

Furthermore, the experimental evidence mentioned by Dr. Freund of Detroit, that is the LeCount and Jackson methods, produce the typical lesions in the kidney of chronic nephritis by repeated injection of bacteria. I don't know what Dr. Newburgh's attitude is toward the work of Longcape but the pictures in an article published ten or twelve years ago, giving the effect of repeated anaphylaxis were identical. Why couldn't we have that in an ordinary human being as well as in a rabbit? Clinically in the cases we have to deal with, those two sources of infection and intoxication ought to include the chief etiological factors.

In arthritis, the brilliant results of tonsillectomy I believe come in those cases in which the irritation of the affected tissue is due to a toxine. When you remove the tonsils, the joints clear up promptly. If the trouble is due to an active infection in that joint, it does not clear up, and the infected kidney won't clear up when you take out the tonsils.

Now, then, the functional tests. I would not like to be misinterpreted about my remarks about the unsatisfactory nature of our renal functional tests. I think that they have added wonderfully to our knowledge of the disease we call nephritis and they certainly have added greatly to our interest in working up a case these days; and I believe in doing that and in studying further, but I don't believe that we have any adequate test of renal function except the simple ones that Dr. Mortensen mentioned, or whether the kidney secretes solids and water or only water. Whether the disturbance of these various tests from the normal is due to the trouble in the body tissues whereby water is not allowed to get to the kidney or whether due to trouble in the kidney or whether it is attributed to both, we have yet no means of telling.

Now, as far as alkali therapy is concerned I would say the same about that. As far as the perfection of our guides is concerned, I don't

think we have any adequate means of telling. The best we have, I think, as far as I am concerned, is to be guided by the clinical symptoms together with the fact that the urine of the patient hovers about the neutral point. As far as the different kinds of salts are concerned, I think that is a very open question. The investigations that are now going on teach us a great deal.

You know that if you take a certain kind of alkali and put it into a mixture of water and oil, an emulsion of water in the oil is formed. The water will be in droplets and the oil around it. If you change the salt, you can reverse that and make it an emulsion of oil in water. And the neutral point where those salts balance, that influence it one way or the other, may some day be shown to be the most favorable combination of salts for the treatment of edema and for the activity of metabolism. How are you going to measure it? I don't know. I do pretend, however, that we ought to avoid over-acidity of the body fluids in nephritis and that you help the patient when you diminish this acidosis.

Dr. Elliott: Regarding the cause of the increased acidity in nephritis. It does not exist in all cases.

Dr. Post: I don't know, sir. Do you?

Dr. Elliott: I don't know that I do. I have an idea it may be due to the kidney insufficiency resulting from the nephritis.

Dr. Post: As I said in my paper, I think perhaps it is due in part to that. In a number of papers I noticed just recently there is a sort of epidemic among workers not only in this country, but in Europe. The retention theory really does not account for the increase, for instance, of the undetermined nitrogen in the plasma of the blood. It must be accounted for by an increased development of those proteids in the body. In these typical cases of nephritic acidosis, we don't know whether it is due to lack of excretion or whether it is due to some form of disturbed metabolism.

Dr. Elliott: To say a certain effect of nephritis is not produced by organic disintegration resulting in disturbance of the chemical balance is an element injected and secondary. There is much that awaits proof of nephritis. For example, we know in a way that at a certain point in nephritis, if you take a case of nephritis after it has attained a certain point—anything you can employ has no effect at all.

Dr. Post: Can you illustrate that?

Dr. Elliott: Suppose you take a case of nephritis that gives you the test of let us say, a test of half of one per cent or perhaps zero—that is a chronic process—any effort you may employ, you may put that patient on as careful a balanced diet formula as you possibly can, and you cannot save him. Eliminate to the extent of your ability, and your nitrogen accumulation will go right on, because the tissue breakdown is progressing rapidly.

Dr. Post: Those are very interesting things. I just wondered what you think that is due to.

Dr. Elliott: I presume it is one of the effects of the disease.

Dr. Post: Is it due to retention by the kidney?

Dr. Elliott: And the influence upon the body balance or retained waste products. That is the way it would appeal to me.

Dr. Post: That is the way I was taught, but I have been so disappointed by its failure in application in my experience that I want to ask the other question, and then I find that there are people asking the same question.

The Chairman: I think possibly your program committee may have been criticised for giving you such heavy food this afternoon. Now, I think this discussion has really proven that your committee was correct, that the subject of nephritis demands a great deal more study and frequent discussions.

EPIDERMOPHYTOSIS.

R. C. JAMIESON, M.D.,
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The classification of dermatoses is no longer as simple as it was when two distinctions were made—if it itched it was eczema or scabies, if it didn't it was something else. The therapeutic test no longer holds good, those which are healed by sulphur or zinc oxide ointment and those which are not. Eczema, in particular, which has been the disease most often called upon to explain a skin eruption is now being shown to be a result of various irritants (external or internal) and not a distinct disease entity. Pathologically, eczema—literally a "boiling out"—is identical with dermatitis. This, however, applies to those cases in which an irritant is the source of trouble and not those in which a separate cause has been discovered. These should not have the term "eczema" applied to them at all.

It is not our purpose to discuss all types of so-called eczema such as one sees due to occupation, irritation of clothing, dyes, drugs, etc., or those due to ingestion of food producing a dermatitis by sensitization, dermatitis due to some neurosis or even that large class embracing diseases that cannot be conveniently classified otherwise and are called eczema for lack of a better term. The cases presented are types of a so-called eczema that we have paid particular attention to since 1916, when Ormsby and Mitchell demonstrated that many cases of eczema affecting the hands and feet and treated as such unsuccessfully were due to a type of trichophyton. Until that time the term "ringworm" meant nothing except an annular, mildly inflammatory lesion of varying size, which scaled a little, caused no subjective symptoms and which was

readily amenable to treatment. Or a similar lesion on the scalp, rounded and having the center filled with short nibbled-off hairs.

As far back as 1842, this disease was known to be of a vegetable parasitic nature, but it was not until years later that the subject was more fully investigated, Sabouraud, among others, identifying and classifying a large number of varieties of trichophyton, only a comparatively small number of which are found in human dermatoses, the most common being *T. crateriforme*, *T. acuminatum*, *T. violaceum* of megalosporon endothrix group and *T. asteroides* of the microid ectothrix, *T. rosaceum* of the megalosporon. Epidermophyton inguinale is generally found in the groin.

From a clinical point of view epidermophyto-



Single well marked typical area, showing undermining of skin with collarette around edges.

sis we now know to be what was formerly called a type of eczema, presenting as it does many of the classical symptoms ascribed to eczema—itching and burning, some weeping, mild inflammation and slight swelling. It illustrates excellently that eczema is being divided into many diseases according to the etiology and is no longer regarded as a distinct clinical entity. The so-called dhobie or washerman's itch and eczema marginatum are now known to be an epidermophyton infection and readily respond to treatment. One of the most common types and locations is that which presented all the clinical manifestations of a chronic eczema of the fingers and hands, involving particularly the interdigital and extending somewhat to the dorsal and palmar surfaces. On the toes it was found especially between the 4th and 5th on account of the heat, moisture and lack of ventilation.

These lesions would first appear as one or many small, deep-seated, not easily ruptured vesicles in the locations mentioned, following,

perhaps, a history of tinea cruris. Itching would be at times intense and would be followed by extension of lesions with a definitely defined border to the patch. These vesicles would at times closely resemble the vesicopapule of scabies or the deep vesicle of pompholyx and the disease would be frequently confused with these on account of the location of the lesions. The vesicles would tend to approach the surface, dry and form a thickened scale, and, if the lesion were plantar or palmar, would result in a large hyperkeratotic plaque studded with deep, dried vesicles. After a variable period the typical appearance on the hands and feet would be patches more or less rounded with a definite border, the center composed of a mildly inflammatory area having vesicles or remains of vesicles scattered through it. Sometimes the advancing border would elevate and loosen the superficial layers forming an undermined collar around the lesion. The newer vesicles would exude a small drop of serum on puncture.

Subjective symptoms would vary according to the severity of the disease, being mildly pruritic or even intensely itchy and painful in long standing cases. The pruritus in these cases, however, differs from that in which the dermatitis is of the acute inflammatory type and is not made worse by the use of soap and water as we were formerly taught to expect in eczema. In very chronic cases the infiltration may become pronounced enough to cause deep fissures to appear around the joints, these being productive of pain on motion.

Cultivation of the organism from the cases in our clinic has not yielded satisfactory results as all the cultures have been contaminated by other organisms or failed to grow at all. Sabouraud's media is the one advised for use and on it Ormsby and Mitchell succeeded in obtaining a growth—in their original series—six out of seventeen being Epidermophyton inguinale. They describe the growth on media as "a small, greenish-yellow point, which becomes powdery on the surface, with the color of an unripe lemon beneath. The center gradually becomes acuminate and may become elevated to the height of 1cm. In the course of from three to six weeks, a fluffy, pure white tuft appears at one or many points." Further description of this and other varieties of this group may be obtained from Sabouraud's exhaustive work on the subject, "Les Teignes."

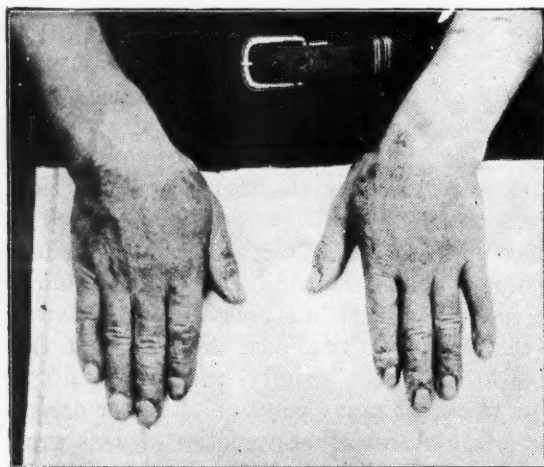
In order to exclude other diseases which may produce similar lesions a microscopic examination is necessary, although this is frequently negative on one or more attempts to discover the organism. Failure to find the spores and

mycelia on the first examination should not lead one to diagnose the condition as non-parasitic, but subsequent efforts should be made to de-



Face secondarily affected.

termine its presence. Ormsby and Mitchell recommend this method for microscopic examination—remove the top of one of the older vesicles with a sharp knife (the older, dried



Showing typical infection on hand of "chronic eczema" type.

vesicles being more likely to contain organisms.) This scale is then covered with 15% sodium hydrate on a slide which is then heated until the liquid boils. The cover glass is then pressed

down firmly, adding more fluid and heating until there is only a thin film under the glass. The spores are loosely attached to each other, tend to a quadrilateral shape and are interspersed with mycelial threads running in all directions.

We have been repeatedly struck by the apparent increase in the number of cases seen in the last year or two, but we are inclined to believe that is more apparent than real and that the increase is due to recognition of the disease and to improved methods of diagnosis and treatment. That this condition of epidermophyton infection is more frequent than is generally imagined is shown by a report of skin diseases at Camp Pike in which it ranks second in frequency, scabies being the first. The duration



Infection on abdomen following appendectomy.

of the disease has varied a great deal, being a few weeks in some cases, in others several years. We also recognize now that it can be communicated in many more ways than it was formerly supposed to be. It has been found that many cases could trace their infection to former epidermophyton infection of the groin which had been cured and forgotten. Animals can be responsible for the infection in many instances, some of which are of a particularly severe type and resistant to treatment. This had happened in a veterinary surgeon recently who had become infected in the beard from handling animals. Other sources of infection include the use of contaminated clothing, contaminated towels, indiscriminate use of socks by athletes and even the floors of locker rooms where infected individuals walk with bare feet.

One patient with a widely disseminated infection stated that it could be traced to the use of some underwear sent back from the laundry.

This was the most extensive case seen as he had at least fifteen or twenty areas varying in size from one to three inches scattered from his head to his feet and involving even his scalp.

Tricophytosis or epidermophytosis is found in all parts of the body, head, glabrous skin, axillae, groin, hands, feet and nails, but as the diagnosis of ringworm of the scalp, groin and axillae and *tinea circinata* is so obvious we will consider only the differential diagnosis of epidermophytosis in locations where it could be confused with lues, dermatitis, pompholyx, pityriasis rosea and seborrheic dermatitis.

When lesions in the palms and soles have become chronic with a great deal of hyperkeratosis, itching and desquamation it could be mistaken for a squamous syphilide which frequently will present those manifestations. Lues



Affecting hands and arms—Lesions vary in size and shape.

in that location does not, however, itch so much nor is there apt to be the same degree of hyperkeratosis with many pin-head sized lesions showing through from the lower strata, representing dried vesicles. A Wasserman test and a microscopic examination as mentioned above should serve to make the diagnosis. There has been only one case which has come under my observation in which luetic lesions simulated epidermophyton on other parts of the body. The lesions in this case were chiefly on the face, hands and back, slightly inflammatory, with a small amount of pruritus, beginning as small groups of papulo-vesicular lesions. Diagnosis was not confirmed until a 4 plus Wasserman was found, the lesions promptly disappearing under anti-luetic treatment.

A chronic dermatitis on the dorsum of the hands—so-called chronic eczema—could readily be mistaken for epidermophytosis. In the vast majority of these cases, however, there is definite

history of trauma with frequently the occupation as the cause of the dermatitis. The areas involved are more painful than itchy, the skin is completely and more deeply involved without deep vesiculation and scaling. Nor are there areas where the inflammation is scarcely noticeable with more acutely involved areas scattered between. The border is usually limited by the line of clothing at the wrist or elbow and withdrawal of the irritant will usually allow the dermatitis to heal.

Pompholyx is frequently confused with epidermophytosis of the palms and soles but has a few points of distinct differentiation. The disease is bi-lateral and usually affects both palms and soles alike simultaneously, appearing as deep-seated, non-inflammatory vesicles with the first hot weather each year. These soon approach the surface, dry, desquamate and then disappear. It has no tendency to become chronic, will disappear without any specific medication and is now considered to be a dysidrosis. There is no fungus associated with it.

Acute dermatitis from plant poison, as typified by poison ivy, could be confused with certain varieties of epidermophyton but there is always a history of exposure, burning, swelling, itching and rapid development in dermatitis venenata.

Certain types of pityriasis rosea and seborrheic dermatitis may resemble a *tinea circinata*, but the latter is so rarely multiple that it is hardly necessary to differentiate the symptoms here.

The routine treatment which we have adopted has been successful with but few exceptions. After thorough soaking of the part with a warm saturated solution of boric acid, removal of crusts and scales as much as possible, Whitfield's ointment is applied and bound on. This ointment consists of salicylic acid 2 parts, benzoic acid 4 parts, benzoinated lard or lanolin 30 parts. Starch may also be added if desired. Many cases were treated with this ointment alone, others were treated with X-Ray only, but those who improved the most rapidly and permanently had a combined treatment. The ointment was used as indicated above and the affected areas were given one-half a mass dose of X-Ray every week or ten days. This produced a very rapid drying of the lesions. Itching was relieved very shortly and involution was hastened by at least fifty per cent.

This, in our opinion, is the most ideal method of treatment and we believe it should be used in all cases for the most prompt results.

Slight recurrences may be looked for in many

cases as it frequently happens that some of the deeper seated organisms are not destroyed, but a repetition of treatment will promptly stop it. 1541 David Whitney Bldg.

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THE CHOICE OF CATARACT OPERATION.*

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The tabulated cases in this report showing the choice of operation include all the operations performed for the extraction of senile cataracts in the Ophthalmologic Clinic of the University of Michigan, from 1905 until 1920, together with those performed on private cases from 1894 until 1920, with the exception of the intra capsular cases which include all up to date.

While all the cases are tabulated in reference to the type of operation performed, I shall discuss especially the Indian operation and the extraction in the capsule by means of traction on the capsule combined with external manipulation as described by Knapp and modified by Török.

The total number of each type of operation follows:

Combined Operation	936
Simple Operation	154
Preliminary Iridectomy	88
Indian Operation	89
Intra-capsular by traction	25
Previous Iridectomy	4
After Trephine Operation for Glaucoma	2
Unclassified	22

Total1320

I shall not attempt to give statistical results of the operations in this paper, but shall speak of method of procedure with conclusions.

The subject of choice of cataract operation is one that has been open to discussion for many years. While certain modifications have come and gone, the combined operation with conjunctive flap has held its own very well and today is the procedure most acceptable to the majority of operators. Among the substitutes for the classical operation, two are now most conspicuously before us, namely the Indian

method and the Knapp or Török operation. Both aim to remove the lens in the capsule, the Indian operation by external manipulation, the other by traction on the lens capsule (Knapp), or by a combination of traction and external manipulation (Török).

That the Indian operation can be successfully performed in certain cases there can be no doubt. But when complications arise, they are often so serious as to force many to the conclusion that the combined operation on the whole is a much safer procedure, at least in this country. The more serious complications of the Indian operation are loss of vitreous, distorted pupil and a disturbance in the anterior vitreous resulting in more or less permanent impairment of vision.

In April 1906, I published the result of my initial Indian operation. This report, as far as I know was the first to appear in this country. The operation was performed with ordinary squint hook and lid elevator. The lens was removed without difficulty, with no accident and the recovery was uncomplicated. That the patient was satisfied, is evidenced by the fact that seven years later, he presented himself at the clinic and requested that the same type of operation be performed on the second eye. This was done with an equally good result, the regular Smith instruments being used. In all, I have performed 89 operations after the Indian method. Many of them were as successful as the first, but gradually, as the number with complications increased, I found myself going back to the old operation, as in my hands a safer and more dependable procedure. This conclusion was reached not after one attempt, but after several honest endeavors had been made to determine the relative merits of the two procedures, renewed effort being prompted by the glowing reports of the enthusiastic adherents to this method of extraction. I now fully agree with Knapp, who after receiving instructions from Col. Smith in India and attempting the operation in New York, came to the conclusion that the lens cannot be dislocated by external manipulation alone without in many instances subjecting the eye to greater pressure than seems wise.

In 1915, Knapp reported a series of one hundred successive extractions of cataract in the capsule, with the traction method.

As described the operation is performed as follows:

The section must be large and should be just short of half the corneal circumference with a conjunctival flap. After iridectomy, the capsule forceps is introduced to a point below the

*Read before Section O. A. R. L., M.S.M.S., May 27, 1920.

center of the pupil, the branches are then allowed to broadly separate, and a distinct knuckle of capsule is grasped. The grasp should not be too tight, lest the capsule be torn, but sufficiently firm to exert traction on the periphery of the lens capsule. The closed branches of the forceps are gently moved from side to side, up and down or rotated, and the capsule can be seen to follow in the various directions. When the dislocation has succeeded, a part of the margin of the cataract in the capsule appears free in the pupillary space. The portion dislocated is usually below, generally slightly to one side or the other, with the upper attachment unruptured. The forceps is then released and withdrawn. Pressure is exerted straight back on the lower part of the cornea with Smith's hook and the cataract can be seen to turn a somersault; it "tumbles" in other words as Smith calls it, and is delivered feet first. When the entire lens has been delivered, it will be found adherent above where it is finally separated by a lateral stroking motion. In some cases, the head presents first, the delivery is then slower and counterpressure must be applied at the scleral margin. The iris columns are then carefully replaced. The coloboma should ultimately not appear any different from that after an ordinary extraction.

Török later suggested that in addition to traction on the lens capsule, external manipulation be employed and further, that when the lens becomes luxated the forceps be not released but that the delivery of the lens be external manipulation be facilitated by a gentle traction on the capsule.

The great advantage this operation holds over the Indian method of extraction is that if one fails to sublunate the lens, a much larger piece of the anterior capsule is removed than with the toothed capsule forceps, and the operator may proceed as in the regular combined extraction.

The forceps designed for grasping the capsule is flattened at the extremities, cup-shaped, and without teeth.

I have attempted the removal of the lens in the capsule by the Török method 25 times, and succeeded in accomplishing the desired result in 12 cases. There was loss of vitreous in one case, otherwise there were no complications, and all made a good recovery. The cases were selected in reference to their probable conduct during the operation and not in regard to the

character of the cataract. In no case, if the patient did not have good control, was the intracapsular operation attempted. In the first 10 cases in which the attempt was made, the capsule ruptured in 8. In the next 15 cases, the lens was delivered intact 10 times, and ruptured 4 times. Total 25 attempts with 12 successes, 48%.

The character of the cataracts was as follows:

	Success	Failure	Unclassified
No.	12	12	1
Immatured	5	8	
Matured	4	3	
Hyper-matured	2	1	
Traumatic	1		

In every instance in which the capsule ruptured, the ordinary combined operation was completed without accident.

In the first ten cases a Kalt forceps was used to grasp the capsule, while in the last 15 cases, Voerhoff's modification of the Kalt was employed. The latter is so constructed that the opening between the blades can be controlled as well as the pressure made on the capsule after it is engaged in the forceps. How much the results were affected by the forceps used, and how much by my inexperience in the operation, I am unable to say. My impression is however, that the Voerhoff forceps is preferable.

While this experience with the traction operation is far too small to justify conclusions, I can say the procedure is much less hazardous than the Indian operation, and I am encouraged to continue in its use in suitable cases.

The simple extraction was performed in young patients and in selected senile cases in which the iris was left intact, the eye was examined the day following the operation, and if a prolapse was present, an iridectomy was performed at once.

A preliminary iridectomy was performed in cases in which the cataracts were developing equally in both eyes and an improvement of vision could be obtained by the use of a mydriatic. Also in cases known to have fluid vitreous or in which the operation on the fellow eye had been followed by serious inflammatory reaction and all cases with even suggestive symptoms of glaucoma.

Like all surgical procedures the choice of cataract operation should be determined by the conditions present, as no single operation is applicable to, or best suited for all cases.

ACUTE FIBRINOUS BRONCHITIS.*

(WITH REPORT OF CASE AND PRESENTATION OF SPECIMEN.)

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Acute Fibrinous Bronchitis is a relatively rare disease characterized by the formation in the bronchial tubes of a fibrinous material which may be thrown off as a cast. Chronic Fibrinous Bronchitis, while rare, is more common than the acute form. Elsner states that in 30 years he had seen but one case and that was of the chronic type. Bettman in 1901 reviewed the histories of 15 acute cases (Johns Hopkins Med. Bulletin) and came to the conclusion that they were much more serious than the chronic form.

The disease is rarely a primary one, usually occurring secondarily to diseases of the lungs and bronchi. Thus cases are reported in patients having asthma, tuberculosis, pneumonia, diphtheria, measles, scarlet fever and actinomycosis. A few cases are on record associated with the passive congestion of cardiac disease. Cautic poisons and irritating gases have been responsible for a few. Osler reported a case due to the *Aspergillus Fumigatus*. Ortnier reported one case in which the membrane gave a pure culture of streptococci. Occurring as it does in such a variety of diseases, it is probable that there is no known specific cause. Bacteria are usually incriminated but attempts to produce the disease experimentally by intratracheal injections of bacteria have failed.

The casts vary in length and may involve the whole bronchial tree. They consist of laminated deposits of fibrin and mucin, infiltrated with leucocytes and epithelial cells. The underlying mucosa may be injected or pale, and the epithelium either denuded or intact. A wide variety of organisms have been grown on culture.

The symptoms and signs are best described by a case report.

Chas. W., age 7, schoolboy. Seen in consultation with Dr. J. W. Sooy, April 30, 1920.

Family History: Father and one sister have asthma.

Personal History: Influenza in January, 1919; measles in Dec., 1919.

Present Illness: On April 26th, he became chilly and was seized with a dull pain in the right chest. He had non-productive cough and felt so badly that he took to bed. On April 28, he was seen by Dr. Sooy who reported that he had a temperature of 103, resp. 46 and pulse 140. He

was restless, coughed a great deal, was short of breath and still complained of pain in the right chest. There was an area of dullness in the right lung posteriorly, over which was bronchial breathing. This did not involve the entire lobe. There were diffuse sibilant rales over both lungs. On April 29th the dyspnea had increased and cyanosis became apparent. On April 30th, when the writer saw him, the dyspnea and cyanosis became so extreme that it seemed as though he would soon be asphyxiated. In a severe choking spell, he commenced to vomit and expelled the cast presented to this society. This cast was about 23 cm. long and varied from 2 cm. at its widest part to 2 mm. at the ends of some of the branches. It was greyish white in color, tough and elastic in consistence and its lumen contained clear mucus. On further examination of the cast it was shown to contain no fungi, diphtheria bacilli, or spirochetes, but gave a culture of streptococci of an undetermined type.

Upon expulsion of this cast the boy became quite comfortable and physical examination was completed. It was noted that respiratory movements were somewhat restricted on the right. Anteriorly, with the exception of scattered sibilant rales, and diminished breath sounds towards the bases, there was nothing to note. Posteriorly on the right there was an area of dullness from the 5th to 9th ribs and extending out to the axilla. Over this area were bronchial breathing and increased voice sounds. Below this there were no breath sounds to be elicited. Above this area, to the level of the spine of the scapula, were sibilant and sonorous rales. On the left side posteriorly, there was a small area of dullness from the 4th to the 8th ribs, and extending out to the scapula. Over this area and somewhat below it, could be heard a great variety of rales, viz sonorous rales, coarse moist rales and a rale of a peculiar flapping character, the "bruit de drapeau" of the French writers.

During the next few days the boy improved rapidly, expectorating considerable mucus and several small plugs. By the end of a week there were no abnormal findings to be elicited in his chest.

Up to date (Oct. 29, 1920) the patient has remained well. One may well wonder if, in view of the family history of asthma, he may not have similar attacks in the future and so necessitate changing the diagnosis from acute to chronic fibrinous bronchitis.

Treatment: Potassium Iodide gr.5 every 4 hours seems to be of value. If the dyspnea and cyanosis are extreme, emetics should be given, provided the heart is not too much embarrassed. Apomorphine in doses of gr 1-20 to 1-10 hypodermatically is most suitable. Morphine should be avoided on account of its depressing action on the respiratory center and because it dries secretions. Pilocarpine has been advised but I should be afraid of producing edema of the lungs with it. Ortnier has given Antistreptococcic Serum with good results in one case. Inhalations of steam from lime water, as suggested by Diermer, may be tried.

715 S. Saginaw St.

*Read before Mich. Trudeau Society, October 28, 1920.

TREATMENT OF NEOPLASMS.*

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During the past few years, many advances have been made in the diagnosis and treatment of neoplasms, producing a lower mortality and morbidity. We believe that patients are presenting themselves earlier for examination of suspicious growths or symptoms of such, and also that earlier diagnosis of malignant tumors are being made by the medical profession.

There will always be patients who will not be examined by a physician until the disease is well advanced, even for this class much can be done to relieve the sufferer, if we have the proper vision.

Our responsibility in the treatment of malignant diseases is great and we must accept it, however, the satisfaction of having even a percentage recover from this dreaded disease is very gratifying.

It will be well to remember that cancer is always first a local disease; but in certain types very readily invades, extends or metastasizes. Therefore, we must attack it with all the means we have to check its progress, namely efficient surgery, X-ray and Radium, combined to suit the case in hand.

CANCER OF THE LIP.

In our opinion, early cases of carcinomata of the lip, may be entirely cured by radiotherapy, radium being applied to the lesion and radium or X-ray combined, to the adjacent lymphatics. In the ulcerative type with or without lymphatic extension, these should have pre-operative X-ray treatments over regions of extension, (as advised by Dr. Rolland Stevens) and others, two weeks later radical excision of the submaxillary, submental glands, second step, excision of the lesion by wedge incisions. The first or second day following the operation, a second X-ray treatment, or radium application. These should be continued at intervals of twelve to sixteen days, with occasional periods of rest, for two years.

CANCER OF THE NOSE AND THROAT.

These cases have not been proven satisfactory when treated surgically as radical excision is often impossible on account of the location and extent of the disease and incomplete operation seems to stimulate the growth of the disease.

In operative line, the best results follow the use of the thermocautery to destroy as much

of the tumor as possible followed by radium in the cavities and X-ray treatments to the cervical glands.

Osteo-sarcomata of the antrum seems to be very amenable to the action of radium.

Radium is much the best method of treating cancer and sarcoma of the tonsil and larynx, and should not be preceded by operative measures.

CANCER OF THE TONGUE.

These cases, especially the well advanced forms, we all know are very unsatisfactory to treat, either by excision, thermocautery, radium or X-ray. We have a few early cases which were given pre-operative ray, two weeks before the operation, excision of the growth, radium application the second day after the operation, radium and X-ray therapeutics to the adjacent lymphatics. These cases are still receiving their post-operative treatments and are doing very well. We know of some cases which have been refused operation, on account of enlarged lymphatic glands, some of these have been proven, by microscopical examination to be purely inflammatory. We would usually advise against operation in cases with secondary infection in the lymphatic glands.

CANCER OF THE BREAST.

About five years ago, a woman 34 years of age, was referred to us, who had an amputation of the left breast six months previous, performed elsewhere; four months later she presented herself to her family physician, with a mass the size of a goose egg, in the left axilla, and slight supra-clavicular involvement. The mass in the axilla was fixed to the surrounding tissue and axillary vessels so that it seemed impossible to perform a complete excision. With the knowledge and observation that X-ray had acted favorably on many superficial cancers, we directed this patient to have a series of X-ray treatments of the axilla, lungs and supra-clavicular regions; hoping to prolong her life, but hardly expecting any permanent results. Roentgenograms of her chest were negative for lung involvement.

Much to our surprise after three treatments, the axillary glands were reduced about 50% and freely movable; the X-ray treatments were continued. Two months later we excised the glands and noted how easily this was accomplished. Microscopical examination showed them to be scirrhus carcinoma. This was our first case in which we used pre-operative X-ray for cancer. Since this time we have always advised pre-operative X-ray therapy, before radical operation for carcinoma of the breast. The

*From the Clinic of Doctors' McLean, Brooks, Barrett and Clinton.

routine is as follows: (1) From one to three treatments every twelve to fourteen days, the dosage should be as large as can be tolerated by the patient's tissue and should be directed to the supra and infra-clavicular axillary regions, opposite breast, mediastium and over the liver. (2) X-ray plates of the chest and if patients complain of back or hips, plates of the spine and pelvis. (3) Radical operation performed from one to two weeks following last treatment. (4) The first or second day following operation the X-ray treatments are continued in series at two week intervals, with occasional one to three month intervals. (5) In every extensive axillary involvement, radium is applied in axilla the dosage depending upon the involvement.

Since we have been using the above method, we have not seen a local recurrence in the skin or in the axilla. We have operated on some cases which seemed in-operable at the time, and even in these cases, by removing all the cancer mass, followed by radio-therapy, we have a number that have passed the three year period.

We have seen three cases in the last two years, when the patients presented themselves for operation for extensive carcinoma very late in the disease, who developed carcinoma of the femur, in two cases fracture followed the carcinomatous invasion, in one case both femurs were fractured; but in neither of these cases was there any signs of local involvement at the time of death.

Ewing has shown from a large number of autopsies, that pleura, lungs, liver and bones metastasize in the following percentage 50, 40, 48, 20 respectively. This is exactly in accord with our records in deaths following cancer of the breast.

GASTRIC AND INTESTINAL CARCINOMA.

The treatment of cancer of the stomach and bowel will depend in a large measure on the time of the diagnosis. When possible, a radical operation should of course always be performed. In our opinion radiation over the liver and epigastrium should precede operation, when this can be done, with out too much loss of time.

Each case should also receive post-operative radiotherapy, carcinoma of the ileum occurs in 2% of the total number of cases of cancer of the bowel, (Ewing); these are usually the colloid type.

Cancer of the caecum, hepatic and splenic flexures of the colon, as well as of the transverse, should in addition to radiation have a

preliminary colostomy, then radical excision whenever possible and closure of the colostomy a few weeks later. Then, by this three stage operation the mortality following resection of the large bowel will be reduced to a minimum.

CANCER OF THE RECTUM.

1. These cases should receive pre-operative radiation followed by temporary colostomy, examination of the liver and glands is made at this time and we decide if the case is favorable for operation; if this is the decision, radical excision is performed, leaving the colostomy as a safety valve to be closed in ten days to three weeks.

2. If the case in hand is not deemed operable, as soon as colostomy drainage has been established, radium in small frequent exposures is instituted. All these cases receive deep X-ray therapy to inguinal, hypo-gastric, lumbar and hypochondriac regions, and the results in some have been very favorable.

CANCER OF THE UTERUS.

We believe that Radiotherapy has made a most marked improvement in the mortality and morbidity of cancer of the uterus, especially those of the cervix. In cancer of the fundus, wherever possible a complete hysterectomy should be performed and followed by deep X-ray therapy to the inguinal hypogastric umbilical and lumbar regions.

However, with early lymphatic extension in squamous celled carcinoma of the cervix, with early invasion of the portio vaginalis, bladder, and rectal walls, surgery alone according to ultimate results is not favorable. We formerly cauterized these large cauliflower growths and then followed up with intensive radium and X-ray therapy, and have been agreeably surprised with the results.

We have treated a large number of these cases without using the cautery and have seen the distressing symptoms almost entirely disappear and the mass disappear and heal over smoothly with two or three radium exposures, combining this with the X-ray as advised above. We believe that radium will be the method of choice in cancer of the cervix, as soon as comparison of both methods of those qualified to judge.

In a small percentage of cases, usually in women below thirty-eight, radium does not seem to work as well, but this may be due to our limited knowledge regarding its methods of application, dosage and the very rapid growth of the disease.

CANCER OF THE BLADDER AND PROSTATE.

Papillary carcinomas of the bladder have been treated successfully with fulguration, many of these cases are apparently cured by radium therapy applied to the base of the tumor, through supra-pubic opening, or in small involvement through the urethra by cystoscope.

It is advisable to have microscopical examination made of all hypertrophied prostates removed as occasionally there are small areas of adeno-carcinoma. Radium seems to have a very beneficial effect on prostatic cancer and may be applied through the supra-pubic opening, per urethra and per rectum, or may be used in needles directly into the tumor.

It seems the opinion of most writers that cases of carcinoma of the prostate very early in the disease invade the surrounding tissue and extend along the lymphatics, so that very few are operable. We have had a few cases show marked improvement under radium and X-ray treatments.

UTERINE MYOMATA.

Many observers have noted the beneficial effect of radium and X-ray on vascular tumors, such as lymphangiomata and cavernous angiomata, but it has only been for the last few years that the uterine tumors have been treated with these agents.

Some gynecologists and surgeons first used these agents to check hemorrhages from fibroids in order to bring the patients to safe operative risks.

Our first patient, on whom we used this method, was forty-two years of age with large fibroid the size of a four months pregnancy, who had been having such severe hemorrhages that she had a very marked secondary anemia with hemoglobin of 30%. We advised her that we would use radium to attempt to get her in better condition so that we might perform a hysterectomy safely. After the first radium treatment she had no further hemorrhages, the tumor has entirely disappeared and uterus seems normal in size. She has recovered in health, gained weight and is entirely well. Since then we have treated many such cases with uniformly good results and now are only operating upon firm, multiple, nodular, fibroids or for tumors larger than a five months pregnancy, or on those causing pressure symptoms, or when they are associated with inflammation of the adnexa.

The menopause following the use of radium, is usually not followed by as severe re-action as after hysterectomy or after the use of X-ray.

Although the operative mortality for fibroid tumors, in ours as in most clinics, has been reduced to almost nil, we are convinced after a careful and complete diagnosis, that in properly selected cases, radium has a very large field in the treatment of this disease. From our own observation, that radium is more preferable than X-ray in these cases, although many careful observers have had good results with X-ray therapy. One great advantage of radium over the X-ray is the length of time for the treatments, a few weeks with radium and months with the X-ray.

METORRHAGIA AND MENORRHAGIA.

Both of these troublesome conditions very often with no assignable cause are usually promptly and permanently cured by one or two applications of radium. The dosage can be accurately controlled and many cases can be cured of these symptoms and in six months to one year menstruate in a normal manner. A diagnosis curetment always precedes the radium application.

SUMMARY.

Better results will follow our efforts in the treatment of cancer and other neoplasms if more correct and early diagnoses are made. We must educate our patients and the laity in the danger signals of cancer. We do not believe it proper surgery to do biopsies in suspected malignant growths unless we are prepared to immediately perform a radical operation.

The sooner we begin X-ray and radium therapy after a diagnosis has been made the better for the patient, although we frequently have to wait one or two days for a microscopical section. **Team work, between surgeon, pathologist and radiologist** is very essential and it will be very beneficial to all if they are present at the time of the operation, or examination to see the tissue involved and give their opinion as to prognosis, the best method or methods of treatment which should be added to the clinical record.

In localized cancer, surgery is still much the best procedure for most malignant growths; but with our increasing knowledge of radiotherapy, many superficial carcinomas or those occurring in accessible cavities will be better treated by the latter method or by a combination of methods.

Whenever possible patients should receive pre-operative X-ray therapy, while it appears that radiotherapy has a selective action in the cancer cell it will only be after years of experience in

the use of these agents and careful records and a very thorough follow up system, that we will be in a position to state the good results of radium and X-ray in lessening the mortality of cancer.

641 David Whitney Bldg.

THE PRESENT STATUS OF ABDOMINAL CAESAREAN SECTION IN MICHIGAN.*

ALEXANDER MACKENZIE CAMPBELL, M.D.,
F.A.C.S.

GRAND RAPIDS, MICH.

The world's conflagration has consumed the lives of ten million individuals, many of whom if alive today would be the fathers of children. The cradles of the world have been robbed and there never was a time in the world's history when the conservation of human life was more necessary than at the present time.

The general practitioner, who in reality is the obstetrician, should interest himself in every problem that concerns the saving of child life and the lessening of infantile and maternal morbidity and he can perform no nobler service than that of informing himself concerning whatever procedures will minimize the injuries to both mother and child in those cases where delivery "per via naturalis" is either unsafe or impossible.

For a number of years the writer has been convinced that by intelligent recourse to Caesarean section the lives of many babies and mothers that might have been saved have been sacrificed owing to a failure on the part of the physician to recognize the exact conditions requiring operative interference; however, on the other hand there has been a dangerous tendency to overdo this operation because of the ease with which the procedure can be done, because of its spectacularity and because the operator as a rule has looked upon the task as a surgeon and not as an obstetrician.

In 1913, we made an attempt to obtain statistics concerning the number of abdominal Caesarean Sections performed and the results obtained in this State during the ten year period just preceding 1913. In this attempt we wrote to 81 hospitals and enclosed a questionnaire in each case asking for the details as to:

- (a) Maternal and Foetal Mortality.
- (b) Time of operation relative to
 1. Setting in of labor.
 2. Rupture of membranes.
 3. Making of Vaginal examination.
 4. Use of obstetrical forceps.

*Read before Section on Gynecology & Obstetrics, M.S.M.S., 1920.

In reply there were 87 operations reported. In these 87 operations 22 mothers had died and there were 25 foetal deaths, making the mortality of mothers 25.2% and that of the infants 28.8%. To the balance of the questionnaire the answers were unsatisfactory and no definite data could be obtained from them.

From these statistics, which were as accurate as could be obtained at that time two facts were definitely shown: First, that it was a lamentable fact that hospital records if kept at all, were kept so meagrely and incompletely as to make it impossible to obtain answers to more than one-half of the questions submitted; second, that a strong conjecture which the writer has held for a number of years was verified, namely, that the medical profession in this state had not acquainted itself sufficiently with the indications for and the technic of this operation, notwithstanding the fact at that time, that in certain of the larger clinics in this country and abroad the mortality has been reduced to from 2 to 5%.

Recently we thought it would be of interest to ascertain what progress had been made in the conduct of this operation since 1913. Accordingly we sent out a similar questionnaire to the one in 1913. We wrote hospitals and received reports covering 192 cases extending over a period of six years, viz: From January 1, 1914 to January 1, 1920.

The following statistics were obtained:

Number of cases reported	192
Maternal mortality	21 or 10.9%
Foetal mortality	26 or 13.5%

These percentages of 10.9 and 13.5 compare very favorably with the corresponding percentages of 25.2 and 28.8 from the 1913 figures. We believe also the percentages of the past six years correspond with the general statistics all over the United States.

In the analysis of the 192 cases as shown by the second question of the questionnaire the following facts were obtained:

Number of cases operated previous to onset of labor	85
Maternal mortality	5 or 5.8%
Foetal mortality	15 or 17.6%
Number of cases operated after onset of labor	91
Maternal mortality	14 or 15.58% plus.
Foetal mortality	12 or 13.1% plus.
Number of cases reported with data too indefinite to classify	16

Of the 91 cases operated after the onset of labor 61 were operated with no other complications with the maternal and foetal mortality 13% plus and 11% plus respectively; 15 were

operated on after rupture of membranes with a maternal and foetal mortality of 13% and 6.5% respectively; 15 were operated after definite attempts had been made otherwise to deliver with a maternal and foetal mortality of 20% and 40% respectively.

Of the cases operated 7 were done by the extra peritoneal method with one maternal death—the child living. These later figures indicate a marked improvement in the management of Caesarean section in the past six years. They show that the mortality both maternal and foetal has been reduced over 50%, and that the operation has been performed more than twice as frequently in the last six years as in the ten years preceding. The figures also show that hospital records are more complete and are being better kept, thus, indicating favorable progress in Hospital Standardization in Michigan.

One can state from these cases that the present statistics of abdominal caesarean section in Michigan show a maternal mortality of 10.9% and a foetal mortality of 13.5%. This mortality can and must be reduced. This reduction will only take place through a more critical study of the indications for and the technic of the operation.

As above stated in order to obtain these statistics we communicated with 137 hospitals but it is regrettable that some of the largest hospitals in the State were unable to furnish us any data whatever. Therefore, the information received was necessarily incomplete and the above figures do not entirely cover the number of caesarean section performed in Michigan during the stated periods.

It is our intention to pursue the study of this question in the near future when it is to be hoped that hospital records will permit a more thorough consideration of this subject as it may obtain in the State of Michigan.

631 Metz Bldg.,

Grand Rapids, Michigan.

Oct. 1, 1920.

DISCUSSION.

DR. ARTHUR S. KIMBALL, Battle Creek. In my experience in the last few years there have been eleven cases that have gone to the operating table for Caesarean section. While I am not an operator myself but am associated with a good man, our percentage has been 100 per cent recoveries from the standpoint of the mother. From the standpoint of the mother from other procedures there were two cases in a series of eleven; one case of eclampsia was operated on, on case was placenta previa, following operation five days she died of convulsions. There was no sepsis at all, and of all the route directly through the perineum two have contracted pelvis, three have placenta previa, three have malformation. In these the positions were such in two cases that if delivery were carried on it would have been fatal.

In both cases the shock would have been severe to the mother, and the shock to the baby would have been severe, and in both instances the best chance for both the mother and child was the Caesarean section and that was justified. The three cases of malformation had gone to operation three times previously, in which there was a relative, 66%, disproportion between the child and the mother. The cervix was high and the route, as delivery by the normal method, which they had gone through four times before, without a living child, was impossible, was the Caesarean operation and this woman went home with a living child, a male, the only heir in the family.

My own belief in the matter is that the shock following the high forceps delivery, provided there has been very little manipulation on the part of the mother, is greater than the shock following a Caesarean operation on a perfectly surgical technic.

DR. REUBEN PETERSON, Ann Arbor: I think this is a very timely paper. I must say that the statistics are pretty bad, but I wonder if it will not be well to publish them so that the profession of the State may have in their hands something to encourage them to do better work. Certainly, as shown by the table of fetal mortality, the indications for these operations were not very scientific, to say the least. Of course, once in a while, one will have a fetal death in a Caesarean section. One cannot always make a positive diagnosis of a monstrosity, or there may be some other deformity in a child which will result in fetal death. But the fetal death rate in abdominal Caesarean section should be very, very low, except when we are dealing with cases of the toxemia of pregnancy, or where we are dealing with eclampsia or something like that. To my mind, the striking fact in these figures is the high fetal mortality. We have all known that Caesarean section was being performed when it was contraindicated, but I think a paper like this which gives us certain facts will open our eyes still more to conditions in our own State. Of course, Dr. Campbell has only touched the subject. He says he did not get the statistics from Harper Hospital, and he did not get the statistics of many cases I know of. They could not possibly have been included in his figures, so this probably gives the results in the better hospitals and of the better operators, because I know men are doing Caesarean sections that have no business to do them, from the lack of training, and those patients are dying every day from the misuse of this operation. It is an easy operation to perform in comparison with other abdominal operations, but the mortality is high unless it is done under the very best conditions. Dr. Campbell's figures show, as have other figures, that when the membranes have ruptured the mortality increases until it assumes alarming proportions. In many of these cases undoubtedly the children were dead before the operation was undertaken and the woman would have had a better chance by having craniotomy and delivery through the natural channels, even when the indication was a contracted pelvis. I think we cannot refrain from emphasizing the fact that in any case where it is necessary, or it is thought it will be necessary to perform abdominal Caesarean section, that vaginal examination should not be permitted. If rectal touch be used, then we can approach that case with the assurance that we are dealing with a non-septic uterus.

To show you how some men of good repute, men who should know better, look upon this question of abdominal Caesarean section, I want to mention a paper that was read before the New Orleans meeting of the American Medical Association, in the section on Gynecology and Obstetrics. Here was a man who advocated in the presence of acute appendicitis the opening of the uterus prior to the removal of the appendix, so as to reduce the size of the uterus and

make his removal of the appendix easier (laughter). If there is anything that could be worse than that in the presence of appendicitis, to open the uterus first, I do not know of it. He got away with the case, but we all know that in cases in which we make blunders and do rotten surgery the patient lives by the grace of God and not from what we do, and to advocate such a procedure as that was the most astonishing thing I ever heard of. In my travels abroad I saw the rottenest abdominal Cesarean section it has ever been my privilege to witness, and that brings up what Dr. Campbell has said in regard to the closure of the abdominal wound. I saw men put in interrupted sutures through the uterus about an inch apart and when they got through the preitoneum was not half approximated. If we have learned anything we have learned to get good results by using the Tier suture. Of course, as Dr. Manton has said, that may be overdone, we may put in too many sutures, but the poor suturing of the uterus has been the cause of many of the ruptures that we hear of following Cesarean section.

I would call attention to a number of indications which Dr. Campbell did not speak of because his time was so short. I believe that if a woman, for instance, has had a complete laceration of the perineum with a vesico-vaginal fistula, and if it has taken a number of operations to restore her to physical and functional health, with the scar tissue that is in that vagina, it is folly to subject her to another delivery by the natural passages. In a number of instances I have had those were indications for abdominal Cesarean section. I can only emphasize what I wrote to Dr. Campbell. It seems to me that if we can make a diagnosis of central implantation we have the best interests of both mother and child in mind when that woman is delivered by abdominal Cesarean section. Those of you who have tried this and compared it with any other method of delivery for a woman with placenta previa will be astonished with the ease with which the operation can be performed and the safety for the mother and child. Ultraconservatism has stood in the way of doing the Cesarean section before delivering the child from below. One should be able to save both the mother and child.

This is such an interesting subject and so many points have been brought up that one could talk all afternoon. I can only say in regard to the questionnaire sent out by Dr. Campbell that he is correct in his conclusion that there has been improvement, and there will be more improvement since the College of Surgeons has taken up this question. But perhaps Dr. Campbell has not realized one thing, and I will call this to his attention. I was exceedingly interested in what he was trying to do. He sent out the questionnaire in January. I received one in connection with my private hospital and proceeded to give him the statistics not only of the private hospital but of the University Hospital. I sent him these and I received the questionnaire from the office of the general hospital sometime in April. Where it has been in the meantime I do not know. It may be that the superintendent of the Harper Hospital still has this questionnaire in his files and has never sent it to the staff. One must remember that in a research work of this kind you have to keep eternally at it. If you send to the hospital, certain hospitals, it will get lost. If you write to a friend and say, "Give me your cases of Cesarean section, I wish to include them in a list," you will get better results. But I think Dr. Campbell has quite enough cases to make an exceedingly valuable contribution.

DR. ARTHUR RAYMOND MOON, Detroit: I am glad these statistics were brought to our attention this afternoon. I think we should institute a campaign to reduce the mortality in obstetrical work, and I wish the statistics might be shown before the surgical and medical sections. If the records from

some of our better maternity hospitals were shown the mortality would not be 10 per cent from Cesarean section. One reason for this high mortality is the fact that many men who are doing obstetrics are not interested in the subject. While most of the cases they see are normal, every now and then an abnormality presents itself and there seems to be some indication for interference. Attempts at high forceps delivery are made, with failures, and then a general surgeon is called in to do a Cesarean section, without weighing carefully the indication and contraindications for such a procedure. If frequent and careless attempts have been made at high forceps delivery perhaps we should do more craniotomies, as Dr. Peterson has suggested. A similar survey was made by a man in Boston some time ago and his records show a terribly high mortality for men who do Cesarean section in and around Boston. Would it not be well to start a campaign here in Michigan to reduce the maternal mortality in this State? In the last twenty years the mortality has not been reduced in obstetrical work. A few years ago we were having a high mortality in appendicitis but that is not true now because men have been educated to operate within the first twenty-four hours, if possible. Men should now be educated to weigh carefully the indications and contraindications for high forceps delivery and Cesarean section. If it is impossible for anyone to determine absolutely the indications for such an operation, it would seem advisable to summon counsel before any attempt whatever was made.

DR. WARD F. SEELEY, Detroit: There has been a good deal of discussion in regard to the lack of statistics in Harper Hospital. To my knowledge the chief of staff did not receive Dr. Campbell's questionnaire at all. I told them in time. During 1919 there were ten Cesarean sections done in Harper Hospital, without maternal or fetal death.

DR. C. E. BOYS, Kalamazoo: I would like to ask if the Doctor would assume to differentiate between the cases that are markedly toxic and those that are done for contraction of the pelvis. The toxic cases die anyway and it seems hardly fair to blame the operation for what is really due to toxemia.

DR. ALEXANDER M. CAMPBELL, Grand Rapids. (Closing): I feel that this very meagre paper has been worth while from the discussion it has aroused. No one realizes any better than I the paucity of the statistics, but I hope to follow up the work. I appreciated the statistics I did receive, and the very complete ones from some hospitals. I based my percentage on the statistics I received. I hope to be able to follow this up and have this report just a commencement of the work. I wrote to the Harper Hospital and received a letter saying that they could not furnish me with any statistics. Then I wrote to the chief of staff and received no reply. Then I wrote to Dr. Seeley, who said he would do what he could, but the statistics were not forthcoming. I think the more details we can give in the work, the better.

The main point I wish to bring out is this: that as a profession, in Michigan, we are not handling these cases as efficiently as we should. There are many surgeons doing Cesarean section who are good surgeons but poor obstetricians. Any campaign that will increase our knowledge of this subject, I think is worth while.

THYROID GLANDS—METASTASIZING EFFECTS.*

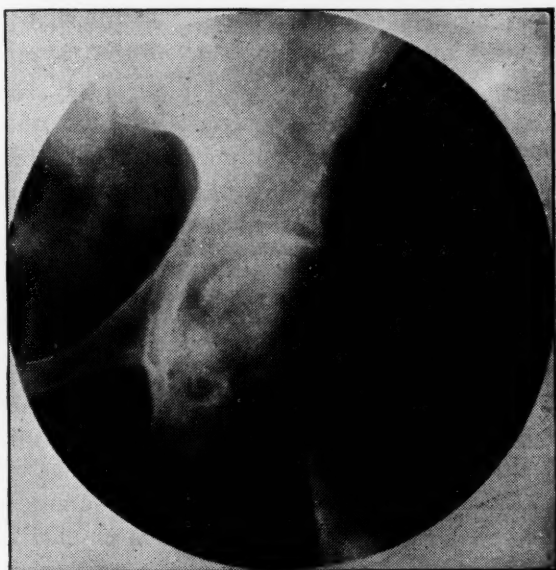
ANGUS MCLEAN, M.D., F.A.C.S.
DETROIT, MICH.

It has been reported by the *Swiss Military Surgeons*, that over seven per cent. of the applicants for military service in the Swiss Army

*Read before the Mississippi Valley Medical Association, Louisville, Ky., October, 1919.

have been rejected from service on account of goitre or some disease of the thyroid gland.

In our late war, the Examining Surgeons, of Michigan reported that over four per cent. of their rejections were on account of goitre, or some disturbance of the thyroid gland. From this report it may be said that Michigan can be considered as being in an active part of the goitre belt or area, of the United States, considering the State's location in the center of the



Showing thyroid metastasis into head of femur (benign).

Great Lake District. I think it may be said to be the center of the goitre area of the United States.

We have a number of goitres of different types, usually with an hereditary history; also cases of congenital hypothyroidism or cretinism. Just what is the cause of goitre, has not yet been settled, but it has been noticed that in cases of cretinism, one or both parents had diseased or inefficient thyroids. Children born in certain localities, are more susceptible to goitre than others.

I saw a young boy, six years of age, about a month ago, who was a typical hypothyroid case. He had over-growth of the muscular and subcutaneous tissues. He was inefficient mentally and had all the characteristics of mild cretinism. There are three children in the family, an older sister and a younger brother. The father and mother seemed perfectly well and had normal thyroids as had the other two children. This boy was born in a different locality from the other two children, his parents, having lived in this locality about two years, preceding his birth and one year after. It would seem from this, that the locality, the soil, the water, or these several factors combined, had some

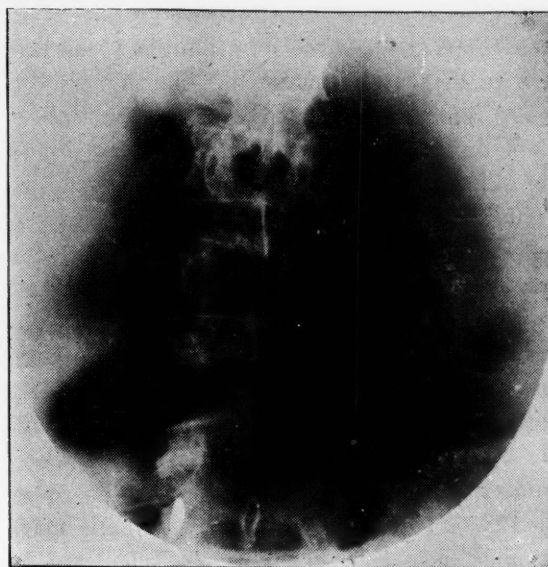
influence upon the development of the embryoid thyroid.

It has long been known that we have metastasis of the cells of the thyroid gland, or some of its contents, to other tissues of the body.

In 1837 Caesar Hawkins, reported cases of cancer of the lung, following cancer of the thyroid Pitel, and others reported cases of thyroid metastasis of non-malignant type in bones, such as the vertebrae, pelvis, jaw and the long bones.

Several cases of metastases into the lung have been reported and demonstrated by the X-ray. Reidal, removed a tumor from the inferior maxilla, composed of normal thyroid tissue, which recurred locally after a period of ten years. The thyroid gland remained normal throughout this period of observation. It has also been thought that metastases of the thyroid tissue cells, have taken place from aberrant thyroid glands. It would seem from this, that cells may be dislodged from normal thyroid, and carried to other organs by veins or lymphatics.

Tumors have been removed from the region of the shoulder and neck, which have been



Showing thyroid metastasis into lumbar vertebrae (Malignant)

thought due to metastasis of thyroid cells, but this was probably aberrant thyroid tissue, that later, began to develop. Thyroid tumors, which are of a benign nature, may be found in most any portion of the body. They have been found in the skull, vertebrae, liver, lungs, spleen, etc.

Simple colloid goitres present a structure that usually remains harmless for years, although they may give rise to metastatic tumors of a benign or malignant type. This is one of the anomalies of the pathological thyroid. These metastatic tumors being similar

to the original thyroid and in most cases containing colloid material.

Aberrant thyroid tissue or aberrant glands have been known to take on an active development similar to the thyroid in hyperthyroidism, having the bruit and throbbing of an aneurism. These having been found behind the sternum or clavicle and diagnosed as aneurisms. Surgeons have applied ligatures for their cure. It is known that this aberrant gland tissue may take on the character of Graves disease, producing a chain of symptoms similar to those found in the thyroid gland, in its normal position. A few of these have been reported.

Thyroid glands are subject to malignant growths, like many other tissues, and are the seat of different types of carcinomata and sarcomata. One or both lobes may become infected afterwards becoming very hard and resembling sclerosis; they become very firm and clinically resemble malignancy of the glands. Accompanying this type of infiltration, there appears to be an excessive amount of secretion taken up by the circulation. Patients suffering from this malady present many symptoms of Graves disease or exophthalmic goitre.

Sarcoma at one time was thought to be rare, as a primary malignancy of the thyroid, but Ewing reports in his work that Erhardt collected one hundred and fifty carcinomas and ninety-nine sarcomas. Ewald's statement shows a proportion of about three or four carcinomas to one sarcoma. Sarcomas occur chiefly after forty years of age, and about equally in both sexes. An hereditary tendency and a history of previous goitre is very common. The sarcoma grows very rapidly and metastasizes rather early. They metastasize chiefly through the veins, and may be of any variety. That is, round celled, spindle, mixed, aveolar or fibrous. The round celled type, being most numerous. While many sarcomas have been reported, it is believed by many pathologists, that the majority of these tumors are of epithelial origin. Areas of round or spindled celled sarcoma have been found in carcinomatous goitres.

Carcinoma of the thyroid is a disease of later years, the majority appearing in the decade between fifty and sixty years of age, but may be found anywhere between the age of ten and ninety. In the great majority of cases carcinoma is secondary to some diseases of the thyroid, which has been present for some time. Ehrhardt gives a previous history of goitre in this type of malignancy as having existed from

one to fifty years previously before its manifestation. The average time, being two years. These metastasize mostly through the blood vessels, although there are some cases where they followed the lymphatic ducts and nodes or both.

Occasionally the original tumor remains small, while metastasis develops; and in a few cases the thyroid has been overlooked until the effects of the metastasis have been discovered, in the lung, bone or other tissue. I will show a slide in which the malignancy of the thyroid was not looked for until after an X-ray had been taken, and the metastasis pointed out; also a slide showing a non-malignant metastasis in the head of the femur. Simple colloid goitres that have remained harmless for years, may give rise to metastatic tumors, either benign or malignant.

The structure of colloid goitre may be found in both primary and secondary tumors. In some instances, tumors of thyroid tissue have developed under circumstances which suggested an origin from aberrant cells. In rare cases, the thyroid tumor remains small and unnoticeable, the first intimation of serious trouble is the detection of a metastasis in the pulmonary tissue or in bone. Those of the lung may be large or small and hemorrhage may be easily excited in this tissue; haemoptysis may follow.

Most any inconsistency of metastasis may be accounted for. The original trouble may be benign, where the secondary is malignant, and vice versa. This is probably shown best by the conclusions of Jaeger, which are as follows:

1. Both the primary and secondary benign.
2. Primary tumor malignant and secondary benign.
3. Primary tumor benign, secondary malignant.
4. Both malignant.

The pathological anatomical and functional disturbance of the thyroid glands are many and quite obscure; these peculiar metastasizing qualities are pointed out to demonstrate the secondary effects of the diseased thyroid.

Enlarged goitres of any hyperplasia produce a degree of mechanical or chemical irritation of the epithelial tissues, and this irritation later may be the cause of a malignancy. Therefore all goitres of this type, should be attended to, for when treatment is long delayed, a percentage of these are followed by cancer.

The Journal

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December

Editorials

AT CHRISTMAS TIME

*"Sheathed is the river as it glideth by,
 Frost-pearled are all the boughs in forests old,
 The sheep are huddling close upon the wold,
 And over them the stars tremble on high.
 Pure joys these winter nights around me lie:
 'Tis fine to loiter through the lighted streets
 At Christmas time, and guess from brow and pace
 The doom and history of each one we meet,
 What kind of heart beats in each dusky case;
 While startled by the beauty of a face
 In a shop-light a moment, or instead,
 To dream of silent fields where calm and deep
 The sunshine lieth like a golden sleep—
 Recalling sweetest looks of Summers dead."*

—Smith

With ever seeming quickening pace, the holiday season o'ertakes the last and almost unaware do we find ourselves in the midst of its festivities. This is the eighth occasion upon which it is again our responsibility and duty to convey to our members and readers the Christmas Greetings tendered to each other and to transmit a sentiment of good-will and good-cheer. Rapid as has been the passing of the year, occupied as we have been with the

affairs of our individual concern, restless though we have been through the threatening manifestations of civic and social life—we are again privileged to enter into the holiday season, pregnant, as it ever has been, with a spirit and sentiment capable of stilling the restlessness within and potent to allay the grievances and differences that may have arisen between fellowmen. In brief, to take on and reflect the spirit of peace and good will.

Whatever may have been our lot this past year, whatever may have been our fortunes or misfortunes, the wish that predominates is that this holiday season may through its spirit and influence inculcate in all the true reflection of peace and good will—that sinned against and sinning may bury their differences beneath the holly bough. Such is the greeting conveyed in our Merry Christmas wishes.

TUBERCULOSIS CLINICS.

The October issue of Public Health contains the following announcement and plea.

For the purpose of centralizing the work in prevention and cure of tuberculosis and for obtaining the highest degree of co-operation with the inhabitants of the state, the Michigan Department of Health assumed on July first the conduct of the clinics for tubercular patients which had previously been under the direction of the Anti-tuberculosis Association. The first duty will be the thorough co-operation with the local organizations of the American Legion, the Red Cross, the Michigan Community Council Commission and other county or city organizations in any of their work which will affect the welfare of citizens and especially former service men.

In connection with this work the bureau of communicable disease has written every physician in the state, endeavoring to secure an accurate survey of all cases of tuberculosis among ex-service men and their families.

This might be called the vanguard work of the Department. In addition there is a corps of trained field workers which recently started work in Lenawee County. Within a year the Michigan Department of Health hopes to have established a tuberculosis clinic in all of the 83 counties of the state. But at first the corps is covering only those counties which already have some local organization or visiting nurses that may be able to carry on the work after the clinic and reports are made.

As can readily be seen, it is absolutely necessary that some definite organization is estab-

lished in each locality to follow up the work done by representatives of the Michigan Department of Health. For there are always a number of cases needing immediate medical attention and steps must be taken to protect others from possible infection.

Offering a city or county this free service, under the joint auspices of the Department of Health and the local community betterment organizations of one nature or other, serves as a comprehensive educational program, impressing everyone with the need of periodic physical examinations.

Only by taking care of every incipient case of the disease will Michigan materially cut down her yearly increment of new cases. This is where the importance of the children's clinics, held in connection with the regular tuberculosis clinics, is stressed. Under the direction of Dr. Rose the children's clinic is designed to discover and advise treatment in case of diseased tonsils, adenoids, bad teeth, glandular trouble, mal-nourishment and anemia. Any child found to be below normal physically is referred to the tuberculosis department of the clinic for examination by Doctor Ramsey.

In the first place, in preparation of establishing a clinic, letters are written to local physicians. Co-operation of physicians is especially desired and needed. The Department of Health wishes to assist them in any manner possible and they are always invited to bring to the clinic any of their private cases for consultation free of charge. A copy of the physical findings of every case which passes through the clinic during its stay in a city is sent to the local doctor whose name is given by the person examined as the family physician. A duplicate copy is kept on file by the Department and another one is left with the local organization for follow up work.

In order to get an announcement of the coming of the free health clinic before all school children in the community a letter is sent to the various public school teachers announcing the fact. Then at least a week preceding the arrival of the clinical corps of the Department posters are displayed throughout the county with active publicity in county papers. Movie slides announcing the coming of the clinic are also employed to get the dates fixed in the public mind, while other announcements are made on the previous Sunday in the various churches.

A daily report of the work at each clinic is sent to the Department of Health. This report gives the number of applicants for examination, men, women, boys and girls; the

number of positive tubercular cases, and suspected cases; physical defects; the number of physicians calling and the general interest shown by citizens in that district. In connection with the holding of the clinics there has sprung up in some communities a practice which the Department commends highly. This is the innovation of holding a general "Health Week" to create popular and proper interest in health work. Arrangements are easily made for meetings of men's and women's organizations or of a group public meetings, any of which both Doctor Ramsey and Doctor Rose are always glad to address.

Just as the Department of Health is organized for the service of the entire state, so the traveling tuberculosis and children's clinics are maintained for special service in communities in detecting of tuberculosis and children's diseases and for the purpose of aiding in their prevention and cure. Local authorities should ask for more and more service from the Department.

The Michigan Department of Health asks for the continued and renewed co-operation of all public, private, philanthropic welfare agencies, such as county tuberculosis society, county Red Cross, Women's clubs, Farm Bureaus, Granges, churches, lodges, public officials and particularly the press.

TO MAKE MICHIGAN FIRST IN HEALTH.

The Journal of the Michigan State Medical Society in its lead editorial of the October issue in commenting on an article *Public Health*, published by the Michigan Department of Health, which related to the state's high communicable disease rate made the following statements:

"We do not believe that 'taking a look' at these figures will improve conditions. Neither can it be expected that steps to reduce the number of these diseases will be successful if individuals or scattered groups of individuals in various parts of the state determine upon and institute varied methods for combating these incidents of disease. What is needed is a state-wide movement, definite methods—in brief a uniform campaign of action. We suggest that in 'asking us to look,' that the Commissioner of Health should not stop there and complacently expect results. We want a plan that is state-wide in its scope."

The Michigan Department of Health appreciates this opportunity to present to the medical profession in Michigan the Department's plan of uniform action to combat disease in this state,

be able to co-operate efficiently and scientifically with practicing physicians and the Department of Health. It is not necessary to dwell upon the desirability and superiority of such a plan over the haphazard system now in use. Any intelligent layman, or any physician, can see its merits. The county unit health officer system will be composed of large enough divisions to function properly; the township health officer plan is fundamentally inadequate. a program which we believe would "Make Michigan First in Health." If the program is to be effective we must look for the hearty support and co-operation of every physician in Michigan.

Briefly the Michigan Department of Health's plan of state-wide scope is this:

1. A full-time, qualified medical man for health officer in every county of the state, to be chosen by county officials from a list of men whose qualifications have been approved by the Michigan Department of Health.
2. Transfer of the Bureau of Vital Statistics to the Department of Health.
3. Adequate laws to control stream and lake pollution, and sanitary conditions at Michigan resorts.
4. Rulings whereby plans of municipalities for additions to, or installation of, systems for water purification and sewage disposal would be approved by the Department of Health before work is begun.
5. Free and unlimited distribution of anti-toxin and other specific biological products.
6. Extension of laboratory service to include branch laboratories in various parts of the state, and subsidy of existing city laboratories to take care of diagnostic work.

Under the present system Michigan has 1,600 health officers. Some of them are qualified medical men; many of them are only part-time health officers; and 800 of them are laymen with no experience in public health work. The present system endeavors to provide a health officer for every township, but on account of the small amount of pay which accompanies the office few physicians care to take the office—a public job which requires considerable time and effort which the ordinary doctor cannot spare from his practice.

In fact, we believe that a full-time, qualified health officer for each county would remedy unsatisfactory existing conditions. Such a health officer would be able to adequately supervise quarantine, reporting, and releasing of cases of infectious diseases in his respective county; he would be able to look after rural sanitation and inspection of school children; and he would

Turning to the Bureau of Vital Statistics we see that this Bureau is under the supervision of the Department of State and that its work is not correlated with that of the Department of Health. Its records are compiled primarily for legal use rather than for public health use. Yet the officials of the Department of Health are, in the main, the only persons using the records of the Bureau. Through no fault of the Director of the Bureau of Vital Statistics monthly reports are not available until the latter part of the succeeding month, or too late for public health use.

Each summer Michigan plays host to millions of visitors who spend their vacations at her resorts. In fact, the resort industry is about the second largest business in the state. The typhoid fever rate in Michigan, however, is largely due to insanitary conditions existing at various summer resorts. Full-time county health officers should be able to cope with this problem of sanitation, especially if aided with adequate laws on lake and stream pollution and sewage disposal. Under the present system where "scattered groups of individuals in various parts of the state determine upon and institute varied methods for combating these incidents of disease" this is impossible.

The free distribution of anti-toxin would do much to curb the high death rate from diphtheria in Michigan. Too often now the family of a person sick with diphtheria delays—on account of the expense—the administering of anti-toxin until too late. Combined with the Shick test (and the taking) of throat cultures of children just previous to the opening of school, the free distribution of toxin anti-toxin for immediate use in every case susceptible to diphtheria would materially cut down the incidence of the disease.

Finally, the extension of laboratory service to include branch laboratories in various parts of the state is absolutely necessary for rapid diagnoses. The delay caused by having all the State's work done in the central laboratory at Lansing is too great for satisfactory work in all communities. Its functions are confirmatory diagnosis, diagnosis where the time element is not important, and assistance in the field in the case of epidemics.

This is our plan, the Michigan Department of Health's plan, a plan arrived at after consultation with numerous physicians and public health men throughout the state. We believe that it will do much to alleviate suffering in Michigan, to cut down the high morbidity and mortality rates—to "Let Michigan Lead in Health."

Guy L. Kiefer.

Editorial Comments

We are forced to recognize that there exists a wide spread spirit of apathy amongst medical men regarding their relationship to the individual and to the state. Here and there, with ever increasing numbers do we find a few doctors who are independently so conducting themselves in regard to state and social medicine that it becomes clearly evident that their chief concern is their personal interests. They have but little concern for their fellow practitioners, they do not stop to consider the future of others, they are solely interested in getting both feet planted in the trough and soaking up that which socialism may grant them as a sop. Would that we had the gift to fire an awakening shot that would cause our rank and file to realize the danger that surrounds them. Our past preachments seem to create but small enthusiasm.

We have read and heard of a number of non de plumes for the various specialties but none appear to be so appropriate in their terseness as the one heard the other day in which the proctologist was referred to as the "Rear Guard."

We are told that the cost to a company carrying automobile insurance is but thirty-six cents out of every dollar paid as premium for a policy. Or that the company makes a profit of sixty-four cents on every dollar of premium charged. Now that practically every doctor drives an automobile and protects himself against accidents by insurance and knowing the rates that are charged we have been wondering why it wouldn't be a good plan to add automobile liability protection as a membership benefit. We anticipate that our efficient Dr. Tibbals would welcome directing another legal feature of our society.

It becomes imperative that we once more direct our members' attention to the necessity of patronizing our advertisers. Deficient advertising revenue means either additional increase in dues or an inferior publication. Advertising contracts cannot be secured or renewed unless the advertiser receives just returns upon his copy. These returns must come from our members by patronizing our advertisers. We again urge that each member convey his patronage to those who use our advertising columns. Give them preference when ordering and let them know why you are doing so.

Well, let's hope we are really on the downward path in the cost of everything. It sure has been some year of inflation in prices. Our November issue cost us over three times what our January, 1920, issue did. Financially the Journal has been a heavy loser and unless a break comes soon we are due for an increased subscription price.

Now that you know who are the senators and representatives from your county we urge that you cultivate their acquaintance. The Legislation

Committee and the Committee on Civic and Industrial Relations are going to call upon each county society to exert their every possible influence upon these members of our State Legislature to defeat undesired legislation upon certain bills that deal with Compulsory Health Insurance, Health Centers so-called and cult legislation. If these bills should pass, you have only yourselves to blame. So get busy.

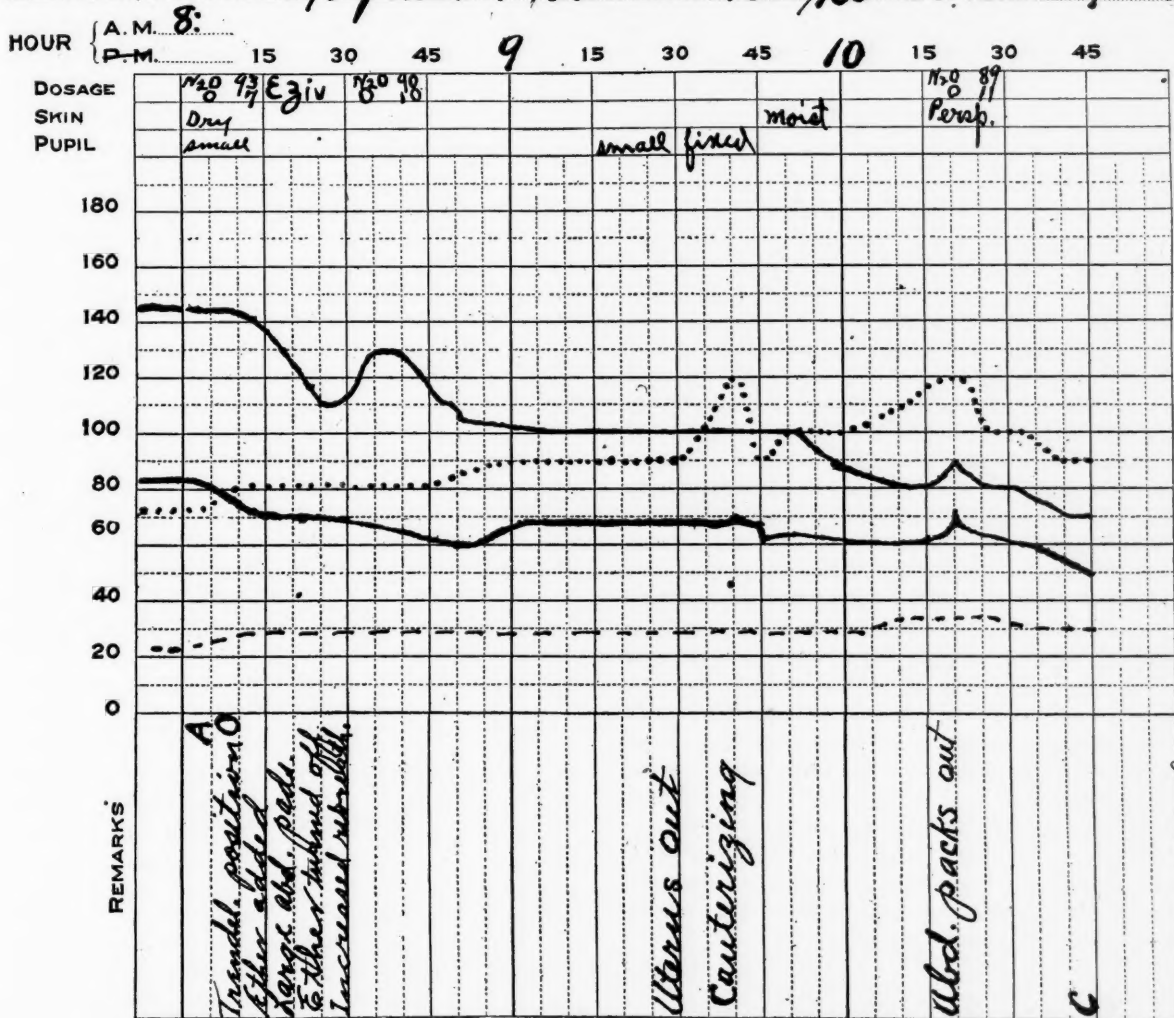
From representations that are made from time to time there are apparent reasons that tend to cause one to conclude that the Clinical Service of our University Hospital is not being conducted with full consideration to the profession's best interests. Rumors of varied type float about the state including some bitter criticisms. We feel that they foretell possible future dissention. It is therefor urged that to maintain a feeling of harmony and to prevent an open rupture between the profession and the University's medical department that a conference should be called. This conference to be composed of representatives of the University and of the profession. A pronouncement of what the scope of activity and development of the Medical Department should be imparted and then if their plans trespass upon the best interests of the profession, let there be brought about a harmonizing compromise. In so doing there will be avoided contentions and differences. Likewise will there be put an end to varied rumors. Those at the head of the Medical Department and the Hospital of our University owe such a course to the profession and must recognize that a spirit of cooperation must be sought. It cannot be expected that passive submission will ensue a policy characterized by dictatorial tendencies and wholesale disregard to the interests of the medical men of Michigan. We trust that such conference will be called, for by doing so the rumor that certain members of the Medical Department have said, "To H—— with the State Profession," will be discredited. We invite our members' opinions in regard to such a conference.

For some time the National Anesthesia Research Society has been directing part of its efforts toward securing an appreciation among the profession of the need of trained and skilled anesthetists. In addition they have sought to point out that the administration of an anesthetic was more than "pouring on the dope." The society now presents the profession with a carefully devised anesthesia record chart, which if employed will do much to induce the administration of a careful, safe anesthetic. We have previously commented upon the need of anesthesia specialists. We are refraining from further comment. However, we are publishing this ideal, perfected anesthesia record feeling that when surgeons require their anesthetists to record their work and the patient's condition during anesthesia upon this chart that then another long step has been taken to obtain safe, skillfully administered anesthesia.

ANAESTHESIA RECORD

Flower Hospital *Cleveland* City *Ohio* State
 No. *210* WARD *C* DATE *9/10-1920*
 NAME *Sarah Jones* AGE *60* SURGICAL RISK ☒ A ☐ B ☐ C
 OPERATION PROPOSED *Wertheim operation for carcinoma ut.*
 PHYSICAL FINDINGS NORMAL EXCEPT *Surgical condition*

PRELIMINARY HYPNOTIC *Morphine & Hyoscin* DOSE *1/6 - 1/50* TIME OF ADMIN. *7 AM.*



ANESTHETIC *Nitrous Oxid-Ox-Ether* TECHNIC *Combined* AMOUNT *E3iv*
 SURGEON *C.W. Smith* ANESTHETIST *H.L. Brown*
 OPERATION *Wertheim operation for carcinoma uterus*

REGAINED CONSCIOUSNESS AT *10:55 AM* O'CLOCK

Satisfactory narcosis

CONVALESCENCE NORMAL EXCEPT FOR

VOMITING { NONE ☒ SLIGHT ☐ EXCESSIVE ☐

CIRC. DEPRESSION { 1ST ☒ 2ND ☐ 3RD ☐ SHOCK

Dues for 1921 are \$5.00. County secretaries are again reminded of this so that they may be governed thereby when collecting dues for the coming year.

From time to time we encounter experiences that reveal the fact that many doctors are totally ignorant of the customs and courtesies of medical journalism and organizational privileges.

Unless otherwise arranged, a paper that is read before the State or County Society is considered the property of that organization which has the privilege to designate in what if any publication the article shall be published. Some of the papers read at our State Meeting we note are being published in other journals. This is a flagrant insult and discourtesy.

A paper sent to a publication and accepted for publication should not be submitted to another journal for publication, unless joint publication is agreed upon. We have also had this discourtesy shown our Journal this past year.

It is customary, before an article is published, to send the author a galley proof for correction. Such galley proof contains a memorandum request, to correct and return by a given date. It is also noted that failing to do so the article will be published in a certain issue with only editorial corrections. Several authors fail to return the proofs sent them until long after the time limit set or the issue is published and then complain because the article appeared without their corrections. It should be remembered that a time limit must be set in order that the Journal may be sent out on the first of the month, therefore galley proofs should be returned promptly.

Reprints are gladly furnished at actual cost. Requests should be made for reprints when galley proofs are returned. The articles are not kept in type after an issue is run off the press. Consequently we cannot furnish reprints if the request for them is not received when proofs are returned.

On account of the almost prohibitive cost of printing we are receiving only fifty copies of each issue in excess of our actual mailing list. These extra copies are for the state files, advertising agencies and contracts. We are consequently unable to supply requests for additional copies of any issue unless such request is received before we go to press.

Original articles submitted for publication must be typewritten and should contain the authors name directly under the title thus:

Goitre: Operative Indications.

John Doe, M.D.

Detroit, Mich.

and not:

Goitre: Operative Indications.

By

Dr. John Doe

Member of Etc., Etc., Etc., Etc.

Detroit.

Nor should the authors name be left until the

end of the article. It should appear directly after the subject.

These comments and suggestions are set forth for our members' information and guidance.

Some adverse criticism has come from a few hospital superintendents and from those who are at the head of the nursing profession because our State Society went on record favoring a reduction of the time required for undergraduate training. What we would like to ask is: Are nurses supposed to be trained to be equal or superior to a doctor or are they to be trained to become a doctor's aid or helper? The tendency seems to be that a nurse should assume a dictating attitude and that consideration for her should supercede the interests and welfare of both patient and doctor. It is very apparent that the efficiency of the present day nurse, the practical training she receives in hospital training schools, her value in the treatment of a case and the nurse's ability and dependability is a third, if not a half, less than it was five years ago. The graduate of today, her attitude, her preparedness, on the whole, is not comparable to her sister-nurse of three and five years ago—of course there are exceptions. The fault lies at the door of training school officials and supervisors. The time is at hand when a reform must be instituted. We as doctors deem it imperative that the revampment be speedily instituted by those responsible for present day conditions.

This issue contains the index for the current volume which is concluded with this number. We have every reason to feel proud of the original articles that are contained in this volume. We do urge, however, that the ensuing volume shall include more clinical case reports and therefore solicit their contribution.

Again, but sincerely—A Merry Christmas.

Correspondence

Editor:

The November Journal arrived today, and not being overly busy I hastened to read the editorials, and before it escapes my memory I want to congratulate you on the excellency of your writings, the portion regarding advertising the standing of the modern physician, and his achievements, I consider more than timely, many a time I have thought that some way should be devised to acquaint the laity with facts as to the education, training, and equipment of the present day physician, and his fitness to administer to their ailments compared to the so-called, long experienced family physician of our "Boy-hood" days, and you certainly struck the nail on the head, and, voiced my sentiments much better than I could ever dream of being able to do.

I wonder however, how much of these editorials were inspired by watching my peaceful countenance while asleep, and you parading around the room like some caged, south African

jungle beast, gosh how you must have suffered by being compelled to occupy your room with such a sleepy head as I.

Again allow me to shower flowers while you are able to appreciate them.

K_____.

Deaths

Benjamin Robinson Schenck eminent gynecological surgeon, was born in Syracuse, New York, August 19, 1872, the son of Adrian A. and Harriet (Robinson) Schenck. His ancestry dates back to the Holland Schencks in unbroken line to the year 1346. His remote Holland ancestor was Heinrich Schenck van Nydeck; the first American ancestor was Roelof Martense Schenck, born in Amsterdam in 1619, who in 1650 came to New Amsterdam, and settled in Flatlands, Long Island, and married, and died in 1704.

Rulef Schenck VI (1776-1852) was born in Freehold, N. J., in the year 1776, and from him our Dr. Benjamin is descended. The latest scions of this remarkable family are thus able to trace their lineage back for twenty generations. Benjamin Baird Schenck VII (1809-1883) the grandfather of our own Dr. Schenck was a physician, who moved up into the Southern part of New York state and studied in Geneva Medical College, receiving his diploma February 10, 1835. Dissatisfied with the often vague and always heroic methods of "the old school" he turned to Homeopathy with satisfaction, and became a bright light in the fraternity. After a fashion not so rare in those days he also was ordained as a minister of the Gospel, in 1846. He studied Greek at the age of 53 better to understand the Bible.

Benjamin R's father, for whom he felt the deepest affection, was Adrian Adelbert Schenck VIII (1842-1909) who held sundry important political positions and built up a flourishing manufacturing business. He devoted much time to collecting data relative to ancestors, and accumulated a mass of material which his son Benjamin R. put in shape with most assiduous care, and a complete grasp of this always arduous and difficult subject. The outcome of these joint labors of father and son is a volume of 160 pages, entitled "The Descendants and Ancestors of Rulef Schenck. A genealogy of the Onondaga County Branch of the Schenck Family. By Benjamin Robinson Schenck, M. D., from Records and Notes Compiled by Adrian Adelbert Schenck, Detroit, Michigan, 1911." A coat of arms of the family faces the title page. This consists in a helmet in the center of a gold and silver scroll, surmounted by a coronet from which springs a half lion rampant; below the helmet is a second whole lion rampant on a black shield, both lions have fearsome tongues, and the tout ensemble is an impressive affair in these democratic days. This work is an impressive example of the minute

care and thoroughness with which our hero did all his work, for it is an orderly compilation of a vast mass of details, which to have any value must be absolutely accurate. Benjamin R. Schenck went to Williams College and took his degree of A.B. in 1894. He graduated in 1898 as M.D. from the Johns Hopkins University Medical School. He married Jessie McCallum of St. Catharines, Ontario, Aug. 1904; two children were born, Leila Marion (1905) and John Tyler (1907).

After graduation he became a resident on the gynecological staff of the hospital under Howard A. Kelley, from 1898 to 1903, being an instructor in gynecology from 1901 to 1903. His hospital term was divided into two parts, being an assistant from 1899 to 1902, and resident gynecologist (in chief) from 1902 to 1903.

His stay in the hospital was a time of great activity in various scientific problems, and his productivity was such that one cannot refrain from wishing that he had been able to continue longer under such fruitful conditions, untrammelled by the cares of building up a practice. He published then, "On refractory subcutaneous abscesses caused by a fungus possibly related to *Sporotricha*." Johns Hopkins Bulletin, Balto. 1898; p 280.

This piece of work, which constitutes a sort of a graduation thesis, is his most original contribution, and that by which he will be longest remembered, inaugurating up as it did a vast amount of literature within the next 15 years. The disease consisted in a series of very rebellious abscesses creeping up the arm from the right index and hand in a workman who had scratched his finger on a nail; when incised the abscesses discharged a gelatinous puriform material, which gave pure cultures of a sporotrichum on various media, and which soon died out in animal tissues. He was assisted in it by Dr. Finney, Dr. Flexner, and above all by Dr. Erwin F. Smith of the United States Department of Agriculture, who lent his expert knowledge in the determination of the probable genus of the fungus to which the branching mycelial, conidia-forming growth, isolated from the abscesses belonged. The classification could only be approximate as only a conidial form was found.

Schenck's work was thorough, scientific, and wholly satisfactory, leaving nothing to be desired, a model of its kind.

Four cases of calculi impacted in the ureter. Nephro-ureterectomy. Abdominal uretero-lithotomy. Vaginal uretero-lithotomy. J. A. M. A. 1901; this subject of ureteral calculi was a favorite one with him and he made many studies which never were published. With W. W. Russell he worked up an ovarian sarcoma springing from the theca externa of the Graafian follicle Am. Jour. Obs. 1902. Further fruitful studies during this period are these forty-eight cases of post-operative crural thrombosis, N. Y. Med. Jour. 1902; Relaxation of the synchondrosis of the symphysis pubis, following normal labor, treated by sutur-

ing and wiring Am. Med. Jour. 1902. An eighty-eight pound ovarian cyst in a woman seventy-seven years old, J. Am. M. As. 1903; Later he put out a study of the value of the phloridzin test and of cryoscopy for renal insufficiency J. Mich. State Med. Soc. 1904. Renal hematuria of unexplained origin, ceasing after nephrotomy, J. Mich. State Med. Soc. 1904, and Essential hematuria and mild grades of nephritis Surg. Gyn. and Obs. 1911, serve to show his abiding interest and expert skill in the urinary diseases of women.

No better example of a model clinical study can be found in our literature than his "Symptoms, Diagnosis and Treatment of Ureteral Calculus," Johns Hopkins Hospital Reports, X, 1902, of thirty-seven pages with a table citing all the cases operated upon up to date (some 101). The summary of the literature, and the analysis of the symptoms and diagnosis, and the various operative methods presents the scattered data clarified for all future workers in this difficult field. This was the date when the method of discovering calculi by passing a wax-tipped catheter up the ureter and recognizing the pathognomonic scratch marks was still comparatively new.

He settled in Detroit, Mich., in 1903, and remained there in active practice until he went to Colorado in 1916 in search of health, with his family. In Detroit he became a leading exponent of his specialty, and secured general recognition, not only because of his great skill, but perhaps equally by reason of his own sterling worth, and that imponderable something which endears some men more rapidly to all they meet. Schenck had this high spiritual quality to a remarkable degree; all who knew him loved him and none who ever met him forgot him. His industry was remarkable, and his honesty transparent.

He exercised because of these qualities a great influence on the medical fraternity of his state, enhanced by his position as secretary of the Michigan State Medical Society, and editor of the Journal of the society from 1905 to 1910. His editorial work and his business management during this period were most creditable. It also fell to his lot by virtue of his position to organize the state society meetings, always an onerous task.

The writer recalls well with what pride he showed him the new housing of the Wayne Coun-

ty Medical Society, with all its conveniences for library, and for laboratory work, as well as for society meetings. This was an outgrowth of an interest fostered in the Journal Club. The Medical Library also owes its excellent status to his brooding care.

He was gynecologist to the Harper Hospital, and consulting obstetrician to the Woman's Hospital, and Associate Professor of Gynecology at the Detroit College of Medicine.

He had a definite Christian faith and was a regular attendant at the Presbyterian church.

After removal to Colorado in quest of health life became one series of ups and downs, in which he never surrendered, but continued to labor on, interesting himself in fitting up houses for various parties coming to the Springs, in this way helping out the livelihood question, in spite of much physical infirmity. Few men are so lamented at their death and few will be so long cherished in the hearts of their friends, as he.

Howard A. Kelly.

The Roman numeral after the name signifies the generation in America.

State News Notes

COLLECTIONS.

Physicians Bills and Hospital Accounts collected anywhere in Michigan. H. C. VanAken, Lawyer, 309 Post Building, Battle Creek, Michigan. Reference any Bank in Battle Creek.

Wanted. Good Doctor to locate in small village. None here now. Little competition. For full particulars address, L. D. Capen, Millbrook, Michigan.

The Physicians and Surgeons Adjusting Association, Railway Exchange Building, Kansas City, Missouri, issues free membership certificates to doctors patronizing the Association's collection service. The idea is proving attractive to many doctors, according to F. F. Hoard, Controller, who says, "Merchants and others form associations for mutual protection against delinquent debtors. The Association provides much the same service for medical men." The Association's announcement appearing in another column is self explanatory.

COUNTY SOCIETY NEWS

It is the Editor's desire to have this department of the Journal contain the report of every meeting that is held by a Local Society. Secretaries are urged to send in these reports promptly

GENSEE COUNTY

The Genesee County Medical Society met on Wednesday, Nov. 3rd, President Orr presiding.

In his inaugural address, President Orr urged the action of the Society to secure the standardization of Hurley Hospital. He spoke on the

need of closer co-operation between the specialist and the general practitioner in the matter of diagnosis, and made a plea for greater unity among medical men. He appointed a committee to meet with Hurley Hospital Board to make such changes as will make this Hospital conform with the standards of the American College of Surgeons. Dr. C. D. Brooks of Detroit spoke on "The Uses of Radium in Surgery." He insisted on the profession trying to make earlier diagnosis of malignancy. He spoke on the types of cases suitable for Radium treatment and showed the necessity of pre-operative and post-operative radiation, not only of the primary lesion, but of remote parts likely to be involved by metastases, especially the lungs, liver, long bones and spine.

W. H. Marshall, Secretary.

The Genesee County Medical Society met on Wednesday, Nov. 17, 1920, Vice-President Wheelock presiding. It was decided that the society adopt an insignia for physicians' automobiles consisting of a white cross on a red background. The committee on Hospital Standardization presented a report, with recommendations for the board of directors of Hurley Hospital. It is hoped that, as a result, this hospital will soon be recognized as a standard hospital.

Dr. Hugo Freund, of Detroit, gave a most instructive address on "The Medical Management of Hyperthyroidism." Of special interest was his elucidation of the value of Basal Metabolism tests in diagnosis and as a check on treatment.

W. H. Marshall, Secretary.

SANILAC COUNTY

The 20th annual meeting of Sanilac County Medical Society was held in the Court House, Sandusky, on Wednesday the 13th of October, 1920, at 1:30 p. m.

President, J. E. Campbell, called the meeting to order.

The following members were present:

J. E. Campbell, W. J. Scott, W. T. Atkinson, G. S. Tweedie, D. D. McNaughton, C. C. Bullard, J. C. Webster, C. E. Jeffery.

Applications of D. C. McLean, W. A. Giffin, S. Stephens for membership in the society were presented and upon vote being taken were unanimously received.

The following officers were elected:

President—J. W. Scott, Sandusky.

Vice-President—J. C. Webster, Marlette.

Secretary—C. E. Jeffery, Deckerville.

Medico-Legal—D. D. McNaughton, Argyle.

Moved, supported and carried that all physicians over seventy years of age be made honorary members of this society.

Dr. D. D. McNaughton of Argyle gave a paper on abdominal pains, which was well received and elicited considerable discussion.

Dr. J. C. Webster of Marlette gave a talk on the technic of removing tonsils by the Sluder method which also called forth considerable discussion.

At a former meeting this society went on rec-

ord as unanimously opposed to the matter of Compulsory Health Insurance.

Moved, supported and carried that we adjourn. Next meeting to be held in Deckerville, date of meeting to be left to the decision of the officers.

Miscellany

ABSTRACT.

In the treatment of the criminal we have passed the stage of brutality and retribution, through the period of religious reformation, and we have now entered upon the scientific and humanitarian era in criminology. We no longer regard the convict as a demon-possessed unfortunate or the wilful and conscious chooser of evil but we do believe after science has pushed through the crust of orthodoxy and delved into the study of those forces which regulate his actions, that he is in a majority of instances mentally and physically defective, that his crimes are manifestations of pathological conditions due to defects of cerebral development or to acquired retrograde changes of the central nervous system.

The best method of treating any disease is its prevention. It is at once admitted that a large part of crime can never be prevented or abolished no matter how perfectly we may regulate human life. There are certain inherent tendencies in the human race, such as hate, anger, jealousy, combativeness, selfishness, etc., which are conducive to crime. It is easy enough to say from a theoretical standpoint that crime is dependent upon personal immorality and social degeneracy and if we suppress these two that crime will be eliminated.

In the psychopathological laboratories of our penal and reformatory institutions it has been shown that crime is largely dependent upon mental defect and it is certain if we can prevent the inheritance of mental defectiveness we can to a great extent prevent delinquency. It is within the power of the state to enact and enforce such legislation as will control to a great degree the manufacture of idiots, imbeciles, moral degenerates, epileptics, insane and syphilitics.

The three most important methods which are calculated to eliminate to a great degree the above mentioned classes are as follows:

1. The restriction of marriage to those who are physically, morally and mentally unfit to assume the duties of parenthood.

2. The segregation of the feeble-minded and more especially the females of this class within the limits of the child-bearing period.

3. The asexualization of the degenerate, defective habitual criminal and chronically insane. The laws of this nature are now being opposed because of the blind, alarmed and superstitious conservatism that is entertained by the public and also because of the almost perfect indifference of society in general to the social and racial welfare.

If society could be reorganized upon improved economic and political lines no doubt criminality would be greatly reduced. The reduction of poverty would reduce crimes against property to a very great degree and if better political relationship could be established between the government and the individual and between individu-

als, the number of crimes against persons would likewise be reduced. Before either of these reforms can take place, public education is necessary. The chief aim of education is to qualify the individual to secure the largest possibilities of life. Education will assist us in seeing the rights of others, the state's duty toward its citizens and our duty toward ourselves.

When the individual is untrammelled by evil birth, when poverty is prevented and economic ills corrected, when he will be given a well rounded education combined with a rationalized religion and intelligent conventional morality, when he is allowed to live a normal life in the pursuit of liberty and happiness, delinquency will largely disappear. We can not hope to eliminate the criminal or crime in the near future. In fact we will have some criminals no matter how perfect society becomes. The criminal is here with us. We must deal with him, as he is.

Treatment implies that we must make a diagnosis of diseases before we proceed with the medication and the same principles must hold true when dealing with criminality. The first changes to be made in our present methods relate to court procedure. Before the alleged criminal comes before the bar of justice he should be examined socially, physically, and mentally in a psychopathic laboratory, that his mental status may be determined. It should be one of the functions of the court laboratory to explain the motivation of crime in each individual case that equity may be practiced. Individualization of the treatment of the criminal can not be carried too far lest it undermine the social defense. Laws can not be made to fit every individual case by legislation. Some standards must be preserved but our courts should know the history of the criminal, including his heredity, education, occupation, previous criminal record and his condition of life, his mental status at the time of the commission of the crime and at the time of trial and the origin, character and intensity, of his crime. When all this information is gathered together and presented to the court, the judge and jury will have a vast fund of information which will enable them to deal with the criminal more intelligently than at present.

Our prisons and reformatories in general are greatly in need of improved administration. It is gratifying to see that the official personnel of penal institutions has greatly improved in the last ten years but there is still opportunity for progress along these lines. The control of penal institutions should be in the hands of educated men, preferably psychiatrists, psychologists, sociologists or educators. An uneducated, illiterate, blindly prejudiced, political henchman can not grasp the first principles of scientific penology. He can not understand that a prison should be a moral hospital and an educational institution.

The penal institution should have a well organized medical department equipped to modern standards and officered by competent physicians so that it may render all the necessary medical service. Every prison and reformatory should have a psychopathic laboratory wherein the prisoners may be classified so that the administration may deal with them intelligently.

Work in itself not hard, becomes so by being pressed day after day with unrelenting monotony. For men who spend the whole of every day in the week in unrelenting toil, very little good can be done for them by one hour religious instruction on Sunday. There is need of mental and physical recreation.

One of the greatest advances made in the treatment of the criminal in recent years was the enactment and enforcement of the indeterminate sentence laws in the various states of the union. All sorts of arguments were brought to bear to prove that these laws were impractical and sentimental. The passage of time however has been sufficient to prove the falsity of these arguments. The indeterminate sentence laws are based upon the theory that they give the criminal the opportunity to choose between reformation and long imprisonment.

It will be necessary under the indefinite sentence laws to have a board of properly trained experts who are capable of judging when an individual should be returned to society. This board should be composed of the superintendent of the penal institution who holds his position by reason of the fact that he is qualified; an attorney, trained in the science of criminology; an alienist, trained in psychology as well as in medicine and who shall have had training in a prison as well as in a hospital for the insane; an educator, conversant with the problems of sociology, and the institution physician, who is a psychiatrist and whose intimate experience and observation of the criminal enables him to render valuable information concerning the applicants for parole. This board of experts should be a board administered by the state and known as the State Board of Parole. It should have no official connection with the penal institutions, except in case of the warden and physician and should be entirely removed from the influence of politics.

In the prison of the future the various classes of individuals will be identified, classified and properly segregated; the prisons will then cease to be simple, custodial abodes of those who have offended society, but they will become complex institutions, equipped with psychological laboratories, modern hospitals, schools of letters and manual training, sanitary workshops, where the prisoner will learn under kindly but firm discipline the truth of the scriptural injunction "In the sweat of thy brow, thou shalt eat bread," and that the privilege to live in extramural society shall depend upon the capacity to earn a decent, honest living at respectable labor. In brief our prisons must become moral, orthopedic institutes for the physical, mental and ethical rehabilitation of criminal man.

The authority of a penal institution must always remain in the hands of the officials of the institution. The prisoners of course are to be allowed certain privileges and liberties and given reasonable trusts within due bounds. If the penal institution gives its inmates a kindly but firm square deal discipline, there will be no clamoring among the prisoners for self-government.

(*Jour. of Delinquency*, Sept., 1920—Paul E. Bowers.)

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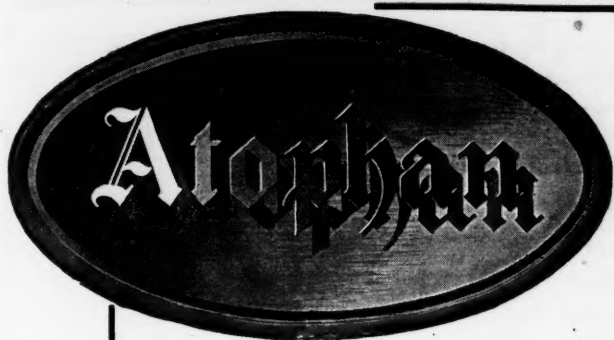
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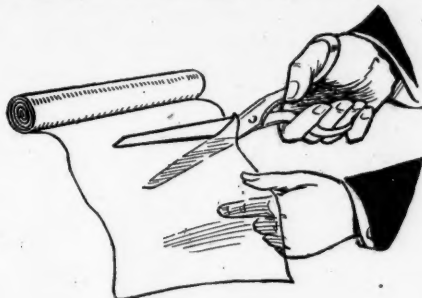
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